183

THE LINK BETWEEN CANCER AND ENVIRONMENTAL CONTAMINANTS AND INDUSTRIAL CARCINOGENS

Y 4.G 74/7:C 16/2

The Link Between Cancer and Environ...

HEARING

BEFORE THE

HUMAN RESOURCES AND INTERGOVERNMENTAL
RELATIONS SUBCOMMITTEE

OF THE

COMMITTEE ON GOVERNMENT OPERATIONS HOUSE OF REPRESENTATIVES

ONE HUNDRED THIRD CONGRESS

FIRST SESSION

OCTOBER 30, 1993

Printed for the use of the Committee on Government Operations

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THE LINK BETWEEN CANCER AND ENVIRONMENTAL CONTAMINANTS AND INDUSTRIAL CARCINOGENS

SATURDAY, OCTOBER 30, 1993

House of Representatives,
Human Resources and
Intergovernmental Relations Subcommittee
of the Committee on Government Operations,
Huntington, NY.

The subcommittee met, pursuant to notice, at 1:30 p.m., in Huntington Town Hall, 100 Main Street, Huntington, NY, Hon. Edolphus Towns (chairman of the subcommittee) presiding.

Present: Representative Edolphus Towns.

Also present: Representatives Floyd H. Flake, Gary L. Ackerman, George J. Hochbrueckner, and Rick Lazio.

Staff present: Allegra A. Pacheco, professional staff member; Martine M. DiCroce, clerk; and Martha B. Morgan, minority professional staff, Committee on Government Operations.

OPENING STATEMENT OF CHAIRMAN TOWNS

Mr. Towns. The Subcommittee on Human Resources and Intergovernmental Relations' hearing on the link between cancer and environmental contaminants will come to order. This begins the subcommittee's continued investigation on cancer prevention and NCI's cancer prevention activities.

This subcommittee has, in the past, held hearings on breast cancer research, diet and cancer prevention, and now is holding this field hearing in Huntington, Long Island—the site of unusually high rates of cancer—on the link between environmental contaminants and industrial carcinogens and cancer.

Of all the factors that are linked to cancer, the chemicals and materials circulating in our environment, in what we eat, drink, and breathe, remain the least researched issue in the cancer science community. Despite the fact that nearly $2 billion—that's "B" as in "boy"—of the American public's tax money is poured into cancer research annually, the National Cancer Institute and the National Institute for Environmental Health Sciences will tell you today that they do not know or cannot tell us which pesticide or hair dye causes cancer.

What they will tell us is that they still need to do more research.

But, I ask the question today: Why, after 20 years of research and billions of dollars, does NCI still not know what environmental factors cause cancer? Why is it that while more than half a million

Americans died of cancer last year, the public still does not know how to prevent cancer?

And, I ask: How can NCI find the answer to these questions when it devotes less than 10 percent of its $2 billion budget to researching the environmental causes of cancer?

It amazes me, that after 20 years of its existence, NCI cannot explain the steady rise in cancer mortality rates in the country and cannot tell us, the public, how to avoid cancer.

What kind of public outreach is going on here? Let me say to you: Very little.

The information in NCI's outreach papers that they have graciously brought to the hearing is so scant, so ambiguous, that once you read them, you still cannot draw any conclusions from them. Their booklet on "Everything You Need to Know About Breast Cancer" doesn't even mention pesticides.

Listen to this uncertainty: I quote from an NCI press release on breast cancer and pesticides, "It raises concerns," "May be due," "Partially to blame"—this is what it says—"Questions have been raised about this," "Possible effects," "Potential risk."

I say to NCI: The public wants to know how to prevent cancer. Your "maybe's," your "potential risks," and your "partial to blame's" don't tell us anything.

What is the truth? Are we being exposed to cancer-causing chemicals in our environment? Do the chemicals in the hair dye, the drinking water, the lawn fertilizer, or on my dry-cleaned clothes unnecessarily expose me to a high risk of cancer?

We need to know.

Why is it that researchers find deposits of DDT in the breast tissue of breast cancer patients?

We need to know.

How is it, as we will hear today, that breast cancer rates are higher in areas surrounding nuclear power plants? Why is it that pets from households that use lawn fertilizers die of cancer more than other pets?

That's a question that we need to have answered.

It is about time that we have these answers—not just studies. I, along with the American people, and the audience assembled today, want to know how we can avoid our exposure to industrial carcinogens. This issue touches all of us, and I hope we will begin to see some progress and get some answers in the very, very near future.

As you can see from the witness list, we have an ambitious agenda today. We will apply the 5-minute rule to all testimony. I ask for everyone's cooperation in adhering to this rule.

I look forward to hearing from all of our distinguished witnesses, because we need answers to this question of cancer and what causes it.

Before we hear from our witnesses, I would like to yield, first of all, to a member of the committee, Congressman Floyd Flake, who comes from Queens, NY, for any remarks that he might have at this particular time. Congressman Flake has been very involved, in terms of working and dealing with this issue not only in his district, but throughout the Nation.

Congressman Flake, I yield to you.

Mr. FLAKE. Thank you, very much, Chairman Towns.

Certainly it is my pleasure and privilege to be a part of this hearing. It is unusual for me to come out on the island on a Saturday, unless I'm going to Roosevelt Field. This is my first Saturday hearing and I'm happy that I've come at a time when we are giving so much attention to the question of health care. As we consider trying to put together a package that meets the needs of all Americans, one of our concerns has to be how we deal with some of the root causes for many of the health care issues that we're trying to address. Both as a Congressperson and as a Pastor I see more people dying from cancer each and every day. The cancer-related deaths in the congregation over the last 18 years far exceed any other. There is a reality, then, that as this particular crisis has grown, we must be able to do some examination of what is in the best interest of our Nation and of our people, even as we address health care concerns.

I don't believe we can develop an adequate health care program or an adequate health care system without dealing with the reality that the impact of cancer brings about a cost that, in many instances, makes the difference between whether a family is able to survive or whether that family uses all of its historical resources.

The bottom line for all of us, then, is how do we attack the problem? And I think today's hearing gives us an opportunity to be able to move in a direction that allows us to get to those root causes, knowing that ultimately the health care package will meet some needs but cannot meet all needs.

I think the health care package will meet needs after the fact. I think what we do today is begin to try to attack the problem first.

I certainly want to welcome my good friends, the Senator from the State of New York, Alfonse D'Amato, and thank you for the letter you sent the other day.

For those in Long Island who don't understand that I can have a Republican friend, you must understand that I learned that when I went through the Congress that if I wanted things done as a member of the Banking Committee on the House side, that I had to have a good friend on the Senate side, and Alfonse D'Amato has been that. But, more than that, we were friends long before we made determinations on the basis of party, and I think that has carried throughout our political careers.

And certainly those who share with us—Gary Ackerman and I, who have been on the committee before he became the Tri-County Congressperson, and certainly it's good to see him. Rick Lazio is now on the Banking Committee and he and I have a piece of legislation, an amendment, that we're currently working on to protect another portion of our environment, and that's those persons who live in these areas where there are floods, who will have some difficulty in trying to replace their properties, as they try to rebuild them. This is a calamity that they are not responsible for.

And, George Hochbrueckner, who is my classmate—we went to Congress at the same time. He went too—I was slated to go to Armed Services and stepped aside so that he could be there. I'm glad he did it, because no one can explain these airplanes better than George Hochbrueckner.

And so, I'm happy to be with you, and I look forward to hearing the testimony of the witnesses. As you know, Mr. Chairman, you encroached upon my schedule so that another member could be here. After the Senator finishes, I will have to go, but I'm happy to be here, to give you my support. Thank you, very much.

Mr. TOWNS. Thank you very much, Congressman Flake.

I understand that we are in Congressman Ackerman's district, and the reason I know this is because he was very instrumental in making certain that we had this hearing here.

So, Congressman Ackerman, I'd like to yield to you at this time for any statements that you might have.

STATEMENT OF HON. GARY L. ACKERMAN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW YORK

Mr. ACKERMAN. Thank you very much, Mr. Chairman.

I do want to express my profound appreciation to you and the subcommittee for coming here to the Fifth Congressional District on Long Island, to hold this hearing; appropriately so, since it is one of our Nation's cancer hot spots. I commend you for your courage, indeed, in coming here.

Let me first acknowledge the presence of several people—some of whom, of course, would like to testify, but will not be able to, because of the constraints of the time of the hearing—but, at least some of the local elected officials who indeed do care enough to take the time out of their day to be here with us: One being Suffolk County Legislator Alan Binder, who is with us today; North Hempstead Town Council Member Barbara Johnson. In addition to being a great elected official, she is also a breast cancer survivor. And, Suffolk County Legislator Jim Gaughran also joins us today, right in the back of the room. And, if any others show up, we'll be glad to acknowledge their presence. Just let us know.

I'd also like to express my appreciation to Long Island's soldiers in the battle against breast cancer, many of whom are also here with us this morning. There are too many to mention them all, but I'd like to make special mention of just a couple of people in the battle: Geri Barish and Fran Kritchek, who are copresidents of 1 in 9, and Barbara Ballaban, director of Adelphi University's breast cancer hotline; and Huntington's very own Karen Miller, president of the Huntington Breast Cancer Action Coalition.

And, of course, I want to extend my gratitude and appreciation to our Senator, Al D'Amato, who will start off as our lead witness today, who has been in the forefront of this battle where so many others have, indeed, been lacking.

And, also, to my other colleagues who have joined us here on the panel, each of whom I hope will be able to participate as fully as they would like—Democrats and Republicans. This is not a political issue.

One correction or amendment, if I might, nobody had to travel all the way out here to Long Island, because Queens is part of Long Island.

Mr. FLAKE. I help keep Long Island solvent. My wife and I purchase almost everything we own out here, Mr. Ackerman, so we keep the tax base in good shape.

Mr. ACKERMAN. We appreciate that commitment, and knowing the shopping habits that you're into, we appreciate it more than anybody could possibly know.

We're here today to ask a question that Long Islanders are particularly eager to see answered: And that is, is there a link between a person's environment and their risk of developing cancer?

Long Island's high breast cancer rate, along with recent scientific studies, seem to suggest that yes, there can be a connection between the two. I believe that available statistical evidence provides ample proof that women living on Long Island have a greater chance of contracting breast cancer than women in other parts of the country. Some would suggest that this is true for other kinds of cancer, as well.

According to research collected in the 1980's, Nassau's breast cancer mortality rate is 16 percent higher than the State of New York's average, and Suffolk's rate is 12 percent higher. This statistic becomes more dramatic when you realize that New York State's mortality rate is one of the highest in the country.

The question, of course, is why do women living here seem to be at greater risk of developing breast cancer than women living elsewhere. Researchers for the Centers for Disease Control are on record as saying that Long Island is simply the unfortunate setting for a convergence of known risk factors for breast cancer, such as socioeconomic, reproductive, and, believe it or not, religious characteristics. However, a growing number of independent scientists and many Long Islanders have suggested that local environmental contaminants are playing a key role in driving up Long Island's breast cancer mortality and incidence rates.

All of us here on Long Island must accept the fact that some of the environmental factors we suspect as culprits may, in fact, turn out to be innocuous. But, at the same time, I believe the scientific and medical community must begin to focus greater attention on what appears to be a greater and greater possibility each and every day, that environmental factors may lead to increased risk of contracting cancer.

Just 2 weeks ago, a study was published that establishes a link between industrial pollutants and breast cancer. The study, which was conducted by Greenpeace and a number of women's health groups, found that women with high concentrations of chlorine-based pesticides in their blood and tissue are 4 to 10 times more likely to contract breast cancer.

Now, I know that some of you are sitting in the audience thinking to yourselves, "Well, tell us something that we don't know." Many of you have fought to convince the scientific community and the Federal Government that there is a connection between local environmental contaminants and high breast cancer rates. You have struggled to illustrate your point by showing the cancer "hot spots" in your local communities. But all too often, you have been rebuffed with the common refrains that "hot spots are statistically irrelevant," or that "demographics explain the problem."

First of all, more than one woman dying of the same cause on your block is anything but irrelevant. I can't think of anything more relevant. It is incumbent upon everyone of us in the Federal Government involved in this program to never forget that every statistic represents a living, loving, breathing person. On Long Island, we are forced to deal with the heart-breaking reality all too often.

Second, demographics do not explain the whole problem. Most of the experts agree that known risk factors explain only 30 to 40 percent of all breast cancer cases. It is time to look beyond what we know is causing breast cancer and focus on what else might be causing this deadly disease.

Every year, 50,000 women die of breast cancer in this country. That's much more, per year, than in the Korean War, more than in the Vietnam War, where we lost an awful lot of brave men. Where is the war against breast cancer?

When we question some of the moves that we make today, as far as whether or not things are in our national interest, should this not be one of the paramount things that are in our national interest? Saving the lives of our mothers, our wives, our sisters, our daughters, our lovers, and our friends? We don't even know half of the story about what might be causing it.

Fortunately, for the first time in a long time, women from Long Island can finally expect more than to be ignored and brushed aside. The National Cancer Institute has agreed to conduct a congressionally authorized study on Long Island's breast cancer rates. The investigation will consider whether there is a possible link between our high breast cancer rates and several environmental factors, including pesticides and electromagnetic fields. I believe the initiation of this study will present and represent a victory not only for Long Island, but for women throughout the country.

If pesticides, for example, can increase a woman's risk of developing breast cancer on Long Island, then certainly the same would be true for women in all parts of the country, and this, in turn, brings us to the larger issue of how pollutants and contaminants in our environment can harm our health. I believe the issue will only become more important in the years to come.

The Long Island study on breast cancer may find something, and then again, it may not. But, for God's sake, let us make that effort. No stone should be left unturned in our struggle to defeat a disease that affects, and too often ends, the lives of so many women.

Once again, Mr. Chairman, let me thank you for your vigilant attention to this crucial issue of our day, and for bringing the subcommittee here to this district to discuss and explore what has yet to be done.

[The prepared statement of Mr. Ackerman follows:]

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OPENING STATEMENT

THE HONORABLE GARY L. ACKERMAN

THE SUBCOMMITTEE ON HUMAN RESOURCES AND INTERGOVERNMENTAL RELATIONS

HEARING ON THE POSSIBLE LINK BETWEEN CANCER AND ENVIRONMENTAL CONTAMINANTS

OCTOBER 30, 1993

Thank you Mr. Chairman. I would like to begin my comments by expressing my profound thanks to you for selecting Long Island as the site for this important hearing.

I would also like to express my deep appreciation to the many soldiers in the battle against breast cancer who are here with us today. There are too many to name them all. But I would like to make special mention of Geri Barish and Fran Kritchik, Co-Presidents of 1 in 9, Barbara Ballaban, Director of Adelphi University's Breast Cancer Hotline, and Huntington's very own, Karen Miller, President of the Huntington Breast Cancer Action Coalition.

We are here today to ask a question that Long Islanders are particularly eager to see answered - is there a link between a person's environment and their risk of developing cancer?

Long Island's high breast-cancer rate, along with recent scientific studies, seem to suggest that, yes, there can be a connection between the two.

I believe that available statistical evidence provides ample proof that women living on Long Island have a greater chance of contracting breast cancer than women in other parts of the country. Some would suggest this is true for other types of cancer as well.

According to research collected in the 1980's, Nassau's breast-cancer mortality rate is 16% higher than the New York State average, and Suffolk's rate is 12% higher. This statistic becomes more dramatic when you realize that New York State's mortality rate is one of the very highest in the country.

The question, of course, is why do women living here seem to be at greater risk of developing breast cancer than women living elsewhere. Some have said that Long Island is simply the unfortunate setting for a convergence of known risk factors for breast cancer, such as socioeconomic, reproductive, and believe it or not, religious characteristics. However, others have suggested that local environmental contaminants are playing a key role in driving up Long Island's breast-cancer mortality and incidence rates.

All of us here on Long Island must accept the fact that some of the environmental factors we suspect as culprits may in fact turn out to be innocuous. But, at the same time, I believe the scientific and medical community must begin to focus greater attention on what appears to be a greater possibility everyday -- that environmental factors may lead to increased risk of contracting cancer.

Just two weeks ago, a study was published that establishes a link between industrial pollutants and breast cancer. This study, which was conducted by Green Peace and a number of women's health groups, found that women with high concentrations of chlorine-based pesticides in their blood and tissue are 4 to 10 times more likely to contract breast cancer.

I know that some of you sitting in the audience are thinking to yourselves - tell us something we don't know. Many of you have fought to convince the scientific establishment and the Federal government that there is a connection between local environmental contaminants and high breast-cancer rates. You have struggled to illustrate your point by showing cancer hot spots or clusters in your communities.

But all too often you have been rebuffed with the common refrains that "hot spots are statistically irrelevant" or that "demographics explain the problem."

First of all, more than one woman dying of the same cause in your neighborhood is anything but irrelevant. I can't think of anything more relevant. It is incumbent upon everyone of us in the Federal government involved in this problem to never forget that every statistic represents a living, loving, breathing person. On Long Island, we are forced to deal with the heart-breaking reality all too often.

Second, demographics do not explain the whole problem. Most of the experts agree that known risk factors explain only 30 to 40 percent of all breast-cancer cases.

It is time to look beyond what we know is causing breast cancer, and focus on what might be causing this deadly disease. Almost 50,000 women die of breast cancer every year in this country, and we still don't even know half the story behind what might be causing it.

Fortunately, for the first time in a long time, women from Long Island can finally expect more than to be ignored or brushed aside. The National Cancer Institute has agreed to conduct a Congressionally-authorized study on Long Island's breast-cancer rates. The investigation will consider whether there is a possible link between our high breast-cancer rates and several environmental factors, including pesticides and electromagnetic fields.

I believe the initiation of this study will represent a victory not only for Long Island, but for women throughout the country. If pesticides, for example, increase a woman's risk of developing breast cancer on Long Island, then certainly the same would be true for women in other parts of the country.

This is turn brings us to the larger issue of how pollutants and contaminants in our environment can harm our health. I believe this issue will only become more important in the years to come.

The Long Island study on breast cancer may find something, or it may not. But, for God's sake, lets make the effort. No stone should be left unturned in our struggle to defeat a disease that affects, and too often ends, the lives of so many women.

Once again, Mr. Chairman, thank you for your vigilant attention to this very important issue. I look forward to hearing the testimony of the witnesses.

Mr. TOWNS. Thank you very much, Congressman Ackerman.

Mr. ACKERMAN. If I might, as I promised before, I would also like to announce that the Huntington highway superintendent, William Norton, is with us.

Mr. TOWNS. Thank you very much, Congressman Ackerman, for your involvement, and we're delighted that you extended an invitation to us to come to your district.

Congressman Rick Lazio.

STATEMENT OF HON. RICK LAZIO, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW YORK

Mr. LAZIO. Thank you, very much.

I just want to welcome the chairman, Ed Towns, and express my appreciation for you taking the time and the effort and your commitment to fighting breast cancer, particularly that on Long Island; to express my thanks to Senator D'Amato, who is going to be a witness; and two of my former colleagues who are here today, Legislator Alan Binder and Legislator Jim Gaughran, chief of staff of the legislature, Frank Petrone, all of whom are working very hard on a local level to make sure that there is further input in determining the causes of the linkage between the high instance and mortality rates of breast cancer on Long Island and the environment.

The facts, as we all know, speak for themselves. Women on Long Island have a greater probability of dying from breast cancer than women in other parts of our State or our Nation. When it comes to the fight against breast cancer, the Long Island and New York State congressional delegations put aside partisan differences. Appearances here today by both Democratic and Republican Members of Congress stand as a strong testament to that unity.

Together, those of us here today have voted for increased funding for breast cancer research and, together, we continue to support a breast cancer study directed at Long Island. Specifically, I can strongly assure each of you that we will persist in these efforts. But, today, we are really here to learn. Chairman Towns has assembled an impressive list of witnesses to teach us more about the increased risk of contracting breast cancer faced by women living on Long Island. Of course, the overarching question is: Why?

Why are women on Long Island more likely to die from breast cancer than other women?

While we will obtain no definite answers today, I am hopeful that these hearings will provide us with suggested areas of greater research. I would note that, among today's witnesses, is our own U.S. Senator, Alfonse D'Amato, who has served as a true leader in our battle to eradicate breast cancer.

Again, I want to thank the members, particularly Chairman Towns and Congressman Flake, who have come to Long Island to rededicate themselves to the fight, and all that they're doing in Congress—which is a great deal—to bring attention to the high incidence and mortality rates on Long Island for breast cancer; and I want to thank our witnesses for coming here today and look forward to hearing each of their insights.

Mr. TOWNS. Let me thank you, too, for all the good work that you're doing, and thank you for your kind words.

At this time, I'd like to recognize Congressman George Hochbrueckner from Long Island.

Mr. HOCHBRUECKNER. Thank you very much, Mr. Chairman, for having this hearing and, certainly, I represent the Eastern half of Long Island, from Smithtown to the Montauk area. My colleague, Gary Ackerman, has well expressed my concerns in his opening remarks.

And, as a member of the House Armed Services Committee and an engineer, I'm very pleased to report that the defense authorizations and appropriations bills, whose conference reports we'll be approving next week, contain substantial additional funds for breast cancer research, as well as women's health concerns. I've spoken to the head of the National Cancer Institute and been assured that we will, in fact, as I'm sure you will hear from many people today, have a very comprehensive study here on Long Island, with regard to all of the possible causes of breast cancer on Long Island.

I look forward to the input of our colleagues today, and I'm very delighted to see our Senator, Al D'Amato, here today. We've always had a very good bipartisan working relationship in a variety of areas, and so I look forward to his testimony and that of our other witnesses today.

Thank you very much, Mr. Chairman.

Mr. TOWNS. Thank you, Congressman Hochbrueckner.

Let me begin by saying to our first witness, Senator Alfonse D'Amato, who indicated early on that he wanted to have this hearing, and of course, with Congress, it's always a difficult thing to schedule a hearing. And he simply said to me, "You just schedule it, and I'll be there."

So, we scheduled this hearing on a Saturday, and, of course, he is here, and is the kind of person who has been in the forefront, talking about the need to work together to begin to solve this problem. And, let me say, Senator, I personally appreciate the role that you've played, and your involvement, in terms of making certain that people understand the importance of dealing with this problem. I want to thank you for coming in to testify today before the subcommittee.

STATEMENT OF HON. ALFONSE D'AMATO, A SENATOR IN CONGRESS FROM THE STATE OF NEW YORK

Mr. D'AMATO. Mr. Chairman, thank you very much for the graciousness of your remarks, and more importantly—I mean this from the bottom of my heart—I want to commend you and my colleagues for coming here today to focus attention and to continue the impetus that is so necessary to move us in the right direction.

Let me depart briefly from my very carefully prepared remarks—and I intend to read them all, because my staff has labored with technical people, with some of the finest people in the area that we're discussing, so that I might be more cogent.

I have to tell you, there is no better example of how this country can work, than the coalitions—whether it's 1 in 9, the Adelphi groups, our groups from Nassau, from Suffolk—all of the people and the women, who came together to make the obtuse obstructionists in the institutions turn around. They got the Congress to begin to look at the ravaging that was taking place so unnecessarily, and finally, we have begun to see some momentum.

So, let us applaud the women for the great job that they have done in leading this battle. [Applause].

I tell you, Mr. Chairman, they have sensitized me to this area. They brought their concerns—not with hysteria. Yes, with emotion. But, with sensitivity and with fact. With fact. Indisputable fact.

Let me just bear out one thing and say that if you can handle this fact, then I don't know how you cannot say that by gosh, we've got to do something and now. And that's what led to a battle that I had last week, with the appropriators on the Health and Human Services subcommittees. And, I want to make mention of that, too, because they played fast and loose with the facts. They really did. The National Cancer Institute supplied some of my colleagues with facts that were then used to deride why we in Long Island should have a study, and a study that would benefit not just Long Island—where, by the way, over 1,300,000 women reside—but one that would, as Congressman Ackerman and others have alluded to, obviously have national ramifications and applications.

But, if you're a woman who has lived in Nassau County for more than 40 years, the risk of getting breast cancer is 72 percent higher than a woman of the same age who's lived in Nassau County for less than 20 years; 72 percent.

Now, you tell me, what could be stronger evidence that there are environmental factors driving up the rates of breast cancer on Long Island that we have yet to identify?

That, in and of itself, should just stop you.

A woman living on Long Island for 40 years, is 72 percent more likely to get breast cancer than someone who's only lived there up to 20 years. And why is our government not pursuing these questions more aggressively?

Before I proceed, let me also say, I don't know when I've ever commended Newsday—I never do. Never, never do. I think they're out of step, out of touch, but that's for another time. But, I have to tell you, we owe a debt of gratitude to Dan Fagin and to Ford Fessenden—I didn't pronounce it right, Ford. I didn't want to embarrass you. But, we owe a debt of gratitude to them for their efforts at providing education and raising scientific questions and doing it in a very clear and cogent manner. So, let me say Newsday's wrong most of the time, but they've got a couple of journalists who are pretty good when it comes to this area. [Applause].

And, by the way, they were a very key ingredient in carrying the message and bringing people together on this issue.

The question is: Why are we not making more progress in finding a cure for this horrible disease? It's now more than 20 years since our Nation declared war on cancer, yet the shocking reality is that almost 1 in 3 Americans, or roughly 85 million Americans now living, will eventually develop cancer. That we are still so far from winning this war is simply unacceptable.

Last week, more than 100 New Yorkers joined thousands of others from around the country to deliver 2.6 million letters calling on President Clinton to develop a comprehensive national strategy for fighting breast cancer. Just as we vitally need such a strategy for breast cancer, we also need a comprehensive examination of our efforts and policies as it relates to all forms of cancer—and this hearing, I believe, is an important part of that effort. I am pleased to note that the committee will be hearing from Dr. Devra Lee Davis, a nationally known scholar and toxicologist who has written on xenoestrogens, about which I will say a little bit more later. She has brought much-needed attention to the connection between breast cancer and certain pesticides and other compounds capable of mimicking estrogen in the human body.

Today, Dr. Davis and her colleague, Dr. Aaron Blair, who have done significant work at the National Cancer Institute, examining cancers among farmers, will present important research findings of unexplained patterns of cancer that have been observed in developed countries over the past two decades. These include increases in melanoma, non-Hodgkin's lymphoma, multiple myeloma, breast, brain, kidney, and prostate cancers.

Now, these increases, as Dr. Davis will point out, cannot—cannot—be attributed solely to the fact that we are getting older, or to improved diagnostic technology. While these are relevant issues, they are not sufficient to explain the troubling cancer increases that have been observed worldwide. There is still something going on, some as yet unrecognized environmental factors at work that we need to look into.

Unfortunately, the government has not, to date, been sufficiently committed or organized for research into environmental causes of cancer. We simply are not. Congressman Towns, you alluded to it, and I'm going to refer to the chart. Nothing better illustrates the government's shortfall in this area than the failure of the Centers for Disease Control to seriously address the questions that we on Long Island have been asking for more than a decade, about our community's high breast cancer rates.

In January 1992, after several studies conducted by the State and county departments of health proved inconclusive, a number of us asked the CDC to step in and provide their own evaluation of the situation on Long Island. The CDC's report, when it finally came out, exemplified exactly what's wrong with the way we have all too often approached the question of breast cancer and the environment.

Listen to what they stated: They stated that pesticides and other environmental factors have no known role in inducing or promoting breast cancer. Mr. Chairman, the CDC simply dismissed out of hand the possibility that such factors played any role at all, and relied exclusively on the so-called "known risk factors," such as reproductive history and religion, to explain the community's elevated rates.

Of course, the hard truth is that the known risk factors account for, at best, only 30 percent of all breast cancers. So, the question is: What about the other 70 percent? As my mamma would say, "Chooch, there's something out there." You just can't say that we know what 30 percent is and forget the other 70 percent.

Even the CDC acknowledged that more research is needed to identify new risk factors. That the CDC was willing to ignore the possibility that an unidentified risk factor might have contributed to the problem on Long Island was insulting and irresponsible.

It is because of the CDC's disappointing performance that I've supported and fought for legislation directing the National Cancer Institute to conduct a comprehensive environmental study on Long Island's high breast cancer rates. I'm pleased that the Director of the National Cancer Institute, Dr. Samuel Broder, has made a personal commitment to undertake such a study on Long Island. I'm committed to working with the Cancer Institute, as I know you are, with local scientists, and with concerned members of the Long Island community, to make sure that this study is done right. As the CDC experience demonstrates, it's not enough to simply do the right thing. We have to do it in the right way.

The EPA is another Federal agency that has gotten it wrong when it comes to protecting the public from potentially cancer-causing substances. Despite its charge to shield the public from environmental hazards, the EPA has not yet developed a test system for screening pesticides to determine whether or not they mimic estrogens in the human body and thus potentially increase breast cancer rates. Even among the 10 pesticides that have been shown to cause breast cancer in rats, Newsday reports "not one has been banned or restricted on that basis." This is an appalling situation in that breast cancer remains the most common cancer in women, and most of its causes are not known.

As research conducted by Mary Wolff of Mount Sinai Medical Center has shown, women exposed to high levels of the estrogenic chemical DDT, appear to be 4 times more likely to develop breast cancer than are women with lower levels of DDT residue in their blood. This research is of vital significance to Long Island, where exceptional concentrations of these pesticides were once applied to rid the former potato fields, many of which are now residential subdivisions, of the golden nematode blight. We know that some of these specific chemicals used on Long Island were from the same families of chlorinated organic compounds as DDT and other chemicals that we now suspect possess estrogenic properties. These are almost indestructible, these organochlorines, and I think Dr. Davis will testify to it.

This research is clearly not given the attention it deserves by EPA, whose inaction when it comes to screening pesticides has been appalling. That is why I am committed to working with the chairman of the House Energy and Commerce Committee, Congressman Dingell, to ensure that the administration's upcoming pesticide legislation contains a provision requiring routine screening of pesticides for estrogenicity. This will give the EPA the information it needs to respond aggressively should the threat of estrogenic pesticides be confirmed. These are only two small examples of how the Federal Government has failed to devote the necessary resources and attention to the problem of environmental carcinogens.

There are several broad issues that I think must be addressed if we are serious about making the government more responsive and effective on this issue. First, we must ensure that sufficient resources are being dedicated to those agencies responsible for environmental research and protection. Currently, the National Institute of Environmental Health Sciences, whose mission is to reduce the burden of human illnesses resulting from environmental causes, ranks 12th in funding. Mr. Chairman, you alluded to this. Here on this chart—NIEHS is 12th, out of 17 of the NIH organizations, going back to 1984, if we see the funding levels, the red indicates what the NIH gave as increases, the yellow, what portion of those increases went to the environmental side of it, and you will note that we are almost 50 percent less, going all the way back. In 1986, they actually cut—they actually cut it; 1987, you see a big increase, 50 percent—50 percent.

So, while all of the agencies have been getting increases, only half of the increases have been going to this agency. Now, they rank 12th in funding. They are getting the lowest annual increase of all of the Institutes. What does this say about the priorities we place on controlling and reducing health threats from the environment?

If we recognize that there are these unknowns, if we understand that there is this environmental threat, then why aren't we putting the money in there so they can do the screening, so that they can identify those environmental hazards that constitute—and I will tell you, they constitute the bulk of the 70 percent of the unknown. And we're never going to find out and identify them until we see that there are sufficient resources.

Talk about politics? The politics of the scientific community—and that's the same kind of politics I ran into 2 weeks ago, when I said we need this study for Long Island, and I'll tell you what they said. They whipped out a chart and they said, well, Nassau County only ranks 178th, and Suffolk County, 234, out of all of the Nation's counties.

I knew something was wrong. I said, well, if you take some of our communities—you take, for example the Bellmores or the Massapequas or the Bay Shores, they're as big as some of the counties that you're rating. You can't compare a county of almost 1½ million people, two counties—Nassau and Suffolk—and come up with the same statistics.

And, sure enough, when I got them to break it out and they finally gave me the information on number per 100,000, we found an interesting thing: If you took those counties—and there are 116 of them—that have more than 200,000 women living in them, you'll find out that Nassau County ranked No. 1 over the last 5 years. That's a sorry thing. I wish we didn't. With a rate of almost 36 deaths per 100,000. That rate is one-third higher than the national average.

You can't fool around with those figures. Those are real. And so, when my colleagues on that committee were given this puff by another colleague of mine, and I'm going to show this to him when I get back Monday, that oh, there are lots of other places that are worse. There's none worse.

Suffolk County? Tragically, it's tragically close. It ranked No. 4, where there are counties that have more than 200,000 women. No. 4.

And so, the two counties, side by side, certainly are impacted, and they give us a unique opportunity to study this phenomenon. And while we didn't get it passed in legislation, I am pleased that the National Cancer Institute indicated, through Dr. Broder, that it would undertake this study.

Second, in addition to the resources that we need to give for these environmental factors, we've got to do a better job of coordinating the resources that are being devoted to the problem. The way we do it now, research on environmental health problems is splintered and scattered throughout the government. At CDC alone, there's a Center for Environmental Health, a Center for Chronic Disease Prevention, and an Agency for Toxic Substances and Disease Registry, each with a portion of the responsibility for reviewing environmental-related diseases.

So, when we asked CDC to study the situation on Long Island, they gave the job not to the Center for Environmental Health, which has the primary responsibility for surveillance and prevention of environmental hazards, but to the Center for Chronic Disease Prevention, which is concerned mostly with screening and treatment. That explains why this report talked so much about what we already knew—for example, that the quality of mammography screening is important and should be encouraged—but gave us nothing in the way of creative new ideas for understanding the environmental questions that have plagued us for so long.

We need to examine how these splintered Federal resources can be brought together and focused purposefully on a strategy of reducing human exposure to avoidable environmental carcinogens and other avoidable causes of disease. It will almost certainly save the government money and time. And, finally, Mr. Chairman, we must insure—as new information about environmental hazards becomes available—that it's provided to the public in a manner that will allow people to make informed decisions to protect themselves and their families. If that means avoiding certain areas using bottled water, or whatever it may mean, people have a right to know. They should not be required to live in ignorance and fear, yet that is what is taking place on this entire island now.

Mr. Chairman, I want to thank you and I want to thank the subcommittee for giving me the opportunity to be here, and for joining in the battle that I know that you're committed and all of us are committed to winning.

Thank you.

[The prepared statement of Mr. D'Amato follows:]

Statement by Senator Alfonse D'Amato

Before the

Subcommittee on Human Resources and Intergovernmental Relations

of the

Committee on Government Operations

U.S. House of Representatives

October 30, 1993

I want to thank Congressman Towns for convening this hearing and for providing me the opportunity to appear before this subcommittee today.

I am here because of my deep concern -- which I know Chairman Towns shares -- over the high rates of cancer in our nation -- and by the alarmingly high rates of breast cancer, in particular, right here on Long Island -- and their connection to external factors such as environmental contaminants and industrial carcinogens.

Let me share a startling fact from a recent (1990) State Breast Cancer Study -- and if this doesn't shock you nothing will. If you are a woman and you have lived in Nassau County for more than 40 years, your risk of getting breast cancer is 72 percent greater than a woman of the same age who has lived in the county for less than 20 years.

What could be stronger evidence that there are environmental factors driving up the rates of breast cancer on Long Island that we have yet to identify?

Why is our government not pursuing these questions more aggressively?

And why are we not making more progress in finding a cure for this horrible disease? It is now more than twenty years since our nation declared "war on cancer." The shocking reality is that almost one in three Americans -- or roughly 85 million Americans now living -- will eventually develop cancer.

That we are still so far from winning this war is simply unacceptable.

Last week more than one hundred New Yorkers joined thousands of others from around the country to deliver over 2.6 million letters calling on President Clinton to develop a comprehensive national strategy for fighting breast cancer.

Just as we vitally need such a strategy for breast cancer, we also need a comprehensive examination of our efforts and policies as it relates to all forms of cancer -- and this hearing, I believe, is an important part of that effort.

I am pleased to note that the committee will be hearing from Dr. Devra Lee Davis, a nationally known scholar and toxicologist whose writings on "xeno-estrogens" -- about which I will say more later -- have brought needed attention to the connection between breast cancer and certain pesticides and other compounds capable of mimicking estrogen in the human body.

Today, Dr. Davis and her colleague, Dr. Aaron Blair -- who has done significant work at the National Cancer Institute examining cancer incidence among farmers -- will present important research findings of unexplained patterns of cancer that have been observed in developed countries over the past two decades. These include increases in melanoma, non-Hodgkins lymphoma, multiple myeloma, breast, brain, kidney and prostate cancer. These increases -- as Dr. Davis will point out -- cannot be attributed solely to the fact that we are getting older, or to improvements in diagnostic technology. While these are relevant issues, they are not sufficient to explain the troubling cancer increases that have been observed worldwide. There is still something going on -- some as-yet unrecognized environmental factors at work that we need to look into.

Unfortunately, the government has not, to date, been sufficiently committed to -- or organized for -- research into environmental causes of cancer.

Nothing better illustrates the government's shortfalls in this area than the failure of the federal Centers for Disease Control (CDC) to seriously address the questions that we on Long Island have been asking for more than a decade about our community's high breast cancer rates.

In January of 1992, after several studies conducted by the State and County Departments of Health proved inconclusive, I asked the CDC to step in and provide their own evaluation of the situation on Long Island. The CDC's report -- when it finally came out -- exemplified exactly what is wrong with the way we have all too often approached the question of breast cancer and the environment. Stating that pesticides and other environmental factors have no known role in inducing or promoting breast cancer, the CDC simply dismissed out-of-hand the possibility that such factors played any role at all, and relied exclusively upon the so-called "known risk factors," such as reproductive history and religion, to explain the community's elevated rates.

Of course, the hard truth is that the known risk factors account for, at best, only 30 percent of all breast cancer cases. What about the other 70 percent? Even the CDC acknowledged that "more research is needed to identify new risk factors." That the CDC was willing to ignore to possibility that a still-unidentified risk factor might have contributed to the problem on Long Island was insulting and irresponsible.

It is because of the CDC's disappointing performance that I have supported and fought for legislation directing the National Cancer Institute to conduct a comprehensive environmental study of Long Island's high breast cancer rates. I am pleased that the Director of the National Cancer Institute (Dr. Samuel Broder) has made a personal commitment to undertake such a study on Long Island. I am committed to working with the Cancer Institute, with local scientists, and with concerned members of the Long Island community to make sure that this study is done right. As the CDC experience demonstrated, its not enough to simply "do the right thing"; we have to do it right.

The EPA is another federal agency that has gotten it wrong when it comes to protecting the public from potentially cancer causing substances.

Despite its charge to shield the public from environmental hazards, the EPA has not yet developed a test system for screening pesticides to determine whether or not they mimic estrogen in the human body, and thus potentially increase breast cancer risk. Even among the 10 pesticides that have been shown to cause breast cancer in rats, Newsday reports that "not one has been banned or restricted on that basis."

This is an appalling situation, in that breast cancer remains the most common cancer in women, and most of its causes are not known.

As research conducted by Dr. Mary Wolff of Mt. Sinai Medical Center has shown, women exposed to high levels of the estrogenic chemical DDT appear to be four times more likely to develop breast cancer than are women with the lowest levels of DDT residues in their blood.

This research is of vital significance to Long Island, where exceptional concentrations of pesticides were once applied in a crusade to rid former potato fields -- many of which are now residential subdivisions -- of the golden nematode blight. We know that some of the specific chemicals used on Long Island were from the same family of chlorinated organic compounds as DDT and other chemicals that we now suspect possess estrogenic properties.

This research has clearly not been given the attention it deserves by the EPA, whose inaction when it comes to screening pesticides has been appalling. That is why I am committed to working with the Chairman of House Energy and Commerce Committee, Congressman Waxman, to ensure that the Administration's upcoming Pesticide legislation contains a provision requiring routine screening of pesticides for estrogenicity. This will give the EPA the information it needs to respond aggressively should the threat of estrogenic pesticides be confirmed.

These are only two small examples of how the federal government has failed to devote the necessary resources and attention to the problem of environmental carcinogens.

There are several broad issues that I think must be addressed if we are serious about making the government more responsive and effective on this issue.

First, we must ensure that sufficient resources are being dedicated to those agencies responsible for environmental research and protection. Currently the National Institute of Environmental Health Sciences -- whose mission is to reduce the burden of human illness resulting from environmental causes -- ranks 12th in funding among the 17 Institutes of the National Institutes of Health. In recent years it has received the lowest annual increases of all the Institutes. What does this say about the priority we place on controlling and reducing health threats in the environment?

Second, we must do a better job of coordinating the resources that are being devoted to this problem. The way we do it now, the research on environmental health problems is splintered, and scattered throughout the government.

At CDC alone, there is a Center for Environmental Health, a Center for Chronic Disease Prevention, and an Agency for Toxic Substances and Disease Registry -- each with a portion of the responsibility for reviewing environmental-related diseases.

When we asked CDC to study the situation on Long Island, they gave the job not to the Center for Environmental Health -- which has the primary responsibility for surveillance and prevention of environmental hazards -- but to the Center for Chronic Disease Prevention, which is concerned mostly with screening and treatment. That may explain why their report talked so much about about what we already knew -- for example, that quality mammography screening is important and should be encouraged -- but gave us nothing in the way of creative new ideas for understanding the environmental questions that have plagued us for so long.

We need to examine how these splintered federal resources can be brought together and focused purposefully on a strategy of reducing human exposure to avoidable environmental carcinogens, and other avoidable causes of disease. This will not only yield better research; it will also almost certainly save the government money at the same time.

Finally, we must ensure -- as new information about environmental hazards becomes available -- that it is provided to the public in a manner that will allow people to make informed decisions to protect themselves and their families.

Mr Chairman, I hope that you will keep these issues in mind as you consider the testimony of the witnesses who will follow me today, and I would suggest you use them as a framework for questions of the witnesses with regard to how our government might become more effective in combatting cancer in America.

For the 1.1 million Americans who will be diagnosed with cancer this year, and the millions now living with this disease, this is a war we must win.

Mr. TOWNS. Thank you very much, Senator D'Amato. And also, let me say again that we really appreciate the involvement and the commitment that you demonstrated on this issue as you've made certain that it stays on the front burner. And, I would like to personally applaud you for that and say to you that I look forward to working with you to be able to get some answers.

You're right that the time has come now when we need some specific information that is going to protect the lives of women, especially where we see the areas where there is a serious problem and we know that it just didn't happen by happenstance, that something is going on that caused these cancers.

So, we thank you, again, for your testimony.

At this time, I'd like to yield to my colleague, Congressman Flake.

Mr. FLAKE. Thank you, very much, Mr. Chairman.

I don't have a specific question. Again, I just offer full support not only to you, as a member of the Government Operations Committee, in whatever way we can to get to the bottom, not only of the problem on Long Island, but realizing that this is a mammoth problem that is sweeping across this land.

And, to offer support to the Senator, in whatever way we can, to assure that we have some serious impact on the problem, get some good data, have a basis for being able to do some adequate and competent research, making sure that dollars are available to attack the problem. Because, if we don't put the dollars there, it says that we don't have a real serious commitment. And then, to treat it for what it really is, and that is: one of the greatest causes of death in this country. Anything that causes deaths is something that we ought to be concerned about.

And I think Gary Ackerman perhaps says it best: These are our mothers, these are our wives, these are our daughters. Therefore, it is necessary for us to be serious about trying to attack it. Again, Mr. Chairman, I'm sorry I have to leave so early, but I'm happy that I could get here as a member of the committee to provide a quorum so that this hearing might get started.

Thank you, very much.

Mr. TOWNS. Thank you very much, Congressman Flake.

At this time, I yield to Congressman Ackerman.

Mr. ACKERMAN. Let me thank my next-door neighbor, practically, Congressman Flake, for attending this hearing and point out to those who might be interested, that this is probably one of the best attended, by Members of the House, local community hearings that you can have anywhere in the country. Usually, it's possibly two Members of Congress. We need, I think, three to make it official, and certainly we had and have many more than that, and we appreciate, especially, Congressman Flake coming to make sure and guarantee that we did have that quorum here today.

Senator, thank you for your usual job of being so concise and factual and logically organized in your presentation, in an area where so many technical things are so important to this battle.

We, on our side of the House, appreciate the cooperative fashion that we have been able to work with you, over the years, in a nonpartisan way, and our constituents here on Long Island—and that includes four counties—are pleased to let people know that where there are issues such as this, in which lives are involved, there are no politics. There are no Democrats. There are no Republicans. There is no philosophy involved, except that we would join together, Democrats and Republicans, to fight the kind of battles that we have to join in fighting.

Otherwise, divided and bickering among ourselves and clamoring for our share of the publicity market or whatever cynics might accuse us of, does not really exist, and I think that that's the way we'll win this battle and we appreciate your leadership in that.

I'm just very concerned, especially about the one point that you made with the statistics. Because, indeed, we rely very often so heavily upon those agencies which we fund to provide us with the expertise and the data and the statistics that are used for enabling us to make public policy. And if an agency provides, in some kind of flim-flam way, numbers that are so skewed as to indicate and mislead—I can't think of any other word, and perhaps we'll flesh that out later, from other witnesses—why, why on earth would an agency want to mislead public policymakers into thinking that the problem is not as bad as it seems in a particular area or region, and showing that Nassau and Suffolk Counties, among others, ranked so far back and really wasn't the hot item that they are, really being No. 1 and No. 2 when you do it on a per capita basis.

Do you have any thoughts on that?

Mr. D'AMATO. Yes. I—Mr. Congressman, I would have to say to the chairman, I don't blame the agency so much as the staffers and the Member of Congress who chose to dwell on the fact that if we were rating them without regard to the number of women in the county, that they would be 178th. But if you put it into a situation where it's more representative, with counties of 100,000 women and counties of 200,000 women, it changes just dramatically.

So, what happened is people used the facts, without giving the total picture. And, if they had gone over and said, well, OK, let's examine the rankings based on counties with 25,000 women or 50,000 women, counties with 100,000 women, counties with 200,000, they would have gotten the complete picture. So, what happened is, I think, some of the staffers, in order to beat back our call for this study, said well, Long Island isn't as bad. They only rank 178th. Why shouldn't we have studies of all the others?

So, that was the reason.

I don't think it's with CDC, as a matter of fact—or the National Cancer Institute—I got these figures because we called the National Cancer Institute just yesterday, and they confirmed that if you broke it down statistically, where counties have 100,000 women, over a period of 5 years that lived there, or 200,000, you would have different numbers. In the ranking of counties that have 100,000, Nassau would be No. 2 out of 231 counties. Out of 116 counties where there are 200,000 women or more, for 5 years, it would be No. 1.

Mr. ACKERMAN. Al, I—I dwell——

Mr. D'AMATO. In other words, you can fool around with statistics, and I just want them to know——

Mr. ACKERMAN [continuing]. I dwell on this because I think it is the most crucial part, Mr. Chairman, of what we're dealing with here today. People have asked, "Why are we having this hearing? What are we going to get out of it?"

Evidently, we've gotten a commitment. We, collectively, in the Senate, and on our side, in the House, have fought to authorize this study and authorized it was, in both Houses, with full support of everybody here.

On the appropriations side, we were successful in our House. In your body, the fight was a little bit more difficult, but, indeed, working together, we did get that commitment, finally, to do the study with discretionary funds that were already authorized.

The problem is this: You can do anything with numbers and statistics that you want to do. And, I think that this instance, this very fact that staffers came to a conclusion that the problem to which we want to call the public's attention is not really a problem, by skewing the numbers and coming up with a data base that has no basis in reality when it comes to the lives of people in this country, in order to prove their point, is exactly the reason that we're here today.

They can do this study and come up with numbers based on sets of data that are really not relevant to what we're talking about. And that, I think, is why you're here and why we're here, and I think the public has to know that, and the Federal agencies have to know that, that there will be oversight given to this particular study, the likes of which have never been seen before.

Mr. D'AMATO. I join you in that comment, and I think that's very important that they know there's going to be oversight and we want it done the right way.

Mr. ACKERMAN. Thank you, Mr. Chairman.

Mr. TOWNS. Thank you very much, Congressman Ackerman.

Congressman Lazio.

Mr. LAZIO. I just want to join in my colleagues' comments. And, of course, it begins to make you think, Senator, about these statistics, where we are relative to rural places, places that use, possibly have more agriculture and use a lot of pesticides. Whether there's linkage, and how we can begin to identify commonality between those communities that have high percentages of instances of mortality like we have.

And, certainly, this is something that we need to press ahead and, with a unified front, we will do that, to make sure that we have statistical information and the predicate to go out there and achieve the fundamentals that must be achieved to make sure that we battle back.

I just make that comment.

Thank you, Mr. Chairman.

Mr. TOWNS. Thank you.

Congressman Hochbrueckner.

Mr. HOCHBRUECKNER. Yes. Thank you, Mr. Chairman.

Senator, notwithstanding the concerns and all of the problems that were associated with the authorizing appropriation process, relative to the "money being earmarked" for the Long Island breast cancer study, I spoke directly with Dr. Broder, the head of the National Cancer Institute, had a long conversation, and you indicated that you did, too.

So, notwithstanding the fact that the money was not specifically earmarked, I'm under the impression in speaking with Dr. Broder, that he absolutely will be conducting a comprehensive breast cancer study on Long Island, looking at the environmental factors, genetic factors, and other things, is that your understanding also, in speaking with Dr. Broder?

Mr. D'AMATO. My understanding—yes, it is my understanding that Dr. Broder is going to undertake a comprehensive study, looking at those environmental factors, the same thing that we asked for before.

And I am relatively confident that it will be done with scientific integrity—that they're going to try to do the best they can to identify the various factors. There's been a lot of work done in this area, to lead them into areas that they should be able to look into: the areas of pesticides, for example; the question of the electromagnetic fields. There just is a lot of work that has already been done, that they can use in these areas.

So, I think it's going to be done and you're going to get some testimony from probably one of the foremost toxicologists—Dr. Davis—who is going to testify, and she is an expert in this area. It makes me feel a lot more sanguine to know that we have people in the administration who are dedicated professionals, totally dedicated to getting the facts. And, they've done just a terrific job.

So, I think we can achieve what we're trying to accomplish; and we're probably going to get some bad news. But, better that we get the bad news so our people know how to avoid and minimize their exposure to these environmental hazards. I mean, if we find out that the drinking water is contaminated or has a high degree of probability in certain areas of causing some problems, then we can take some steps to deal with it. It may be tough, but why should people have to live in fear? Half of the people have filters. Some don't. Some drink bottled water. Some—you know—just want to forget about it.

But, when women who live here 40 years or more have a 72 percent higher chance of coming down with breast cancer, you better say wake up. And, as you've all said, the impact is not just that person. It's our family. It's our loved ones. If it's not our family, it's our friends, our neighbors. It's devastating.

And, if we can, if we talk about health costs and the huge debate going on about how we're going to pay, et cetera, here's an opportunity for us to minimize the cost as well as the tragedy, the toll that this takes emotionally on the families. Not just the individuals, but all of the loved ones, anyone connected with those who suffer. These are our families, these are our brothers and sisters who will be impacted.

Mr. HOCHBRUECKNER. Thank you, Senator, for confirming that, because I think it's very important for the people of Long Island to realize that this comprehensive study is going to happen and it's going to be multiyear and be very expensive and get down to the facts that we need to know. And, from a personal point of view, in talking with Dr. Broder, he indicated to me that he had more than just a professional interest in this problem.

Mr. D'AMATO. Well, maybe it took that tragedy to get him going.

Mr. HOCHBRUECKNER. OK, in his own case, as you know, it is——

Mr. D'AMATO. Yes, his wife.

Mr. HOCHBRUECKNER [continuing]. His wife's from Bellmore, and there is a history in the family. So, he has a great personal interest and a professional interest and I'm confident, as you are, that this study will, in fact, happen, and will do what we expect it to do.

Thank you very much, Mr. Senator and Mr. Chairman.

Mr. TOWNS. Let me thank you, too, Congressman Hochbrueckner.

Let me also say, Senator, from where I sit: You know, when I first went to Congress, I was against the seniority system. I thought it was bad——

Mr. D'AMATO. Me, too.

Mr. TOWNS [continuing]. It didn't make any sense.

Mr. D'AMATO. And now I love it.

Mr. TOWNS. But now, since I have some, it makes a lot of sense. [Laughter.]

And let me say to you, as chair of this subcommittee, that you can be assured that this subcommittee will give vigorous oversight to the Long Island breast cancer study. We will be on top of it day and night. [Applause].

Thank you very much, Senator, for your testimony. We appreciate it. Thank you.

Mr. D'AMATO. Thank you for those very strong sentiments that you expressed. I think that's just so important, because the people have felt, I think, let down, if you were to ask them.

This has been—I'm a newcomer to this battle. I got involved, I don't know, about 4 years ago, so they really kind of dragged me in. I didn't believe what I was hearing, because we don't have the scientific expertise. But, I think your statement, because they have been just battling for so long to get attention, the proper attention, goes a long way to making these people feel that they're finally going to get the kind of professional studies, serious studies, the kind of oversight that you and, I think, Congressman Ackerman expressed his concerns about. I know that you are going to play a vital role in insuring that this takes place, so we thank you.

Mr. TOWNS. Thank you, thank you, Senator.

Now, just before I call—let me just make a statement before I call the next witness.

There are—a lot of people who have asked if they could testify, and let me say I wish that it was a situation where you could do that. But, this is an official hearing of the U.S. Congress. It is not a Town Hall meeting.

So, therefore, I want to be as open as I can, because I know you have some burning questions and I understand that there's a great deal of sensitivity on this side. So, what I might say to you is that if you have something that you think should be raised, why don't you just give it to one of these Members of Congress, and I'm certain that they will raise it. It might not be as eloquent as you would do it, but I'm certain that they will raise it on your behalf. So, that's the best I can do, because this is an official government hearing, and I cannot allow it to be opened up for your questions and answers in that kind of way.

With that in mind, I would like to call our first panel of witnesses to come to the table.

Dr. Devra Lee Davis, Dr. Samuel Epstein, and Dr. Ernest Sternglass.

And, let me thank all the witnesses for coming and assure you that every word of your statement, every "I" dotted, every period, every question mark, everything will be included in the record. If you would be kind enough to just summarize, within 5 minutes, and allow the members to raise some specific questions, I would appreciate that format.

Just to help you along, just in case you lose sight of the 5 minutes, I've asked my assistant here, the counsel, to turn on the light, and it will be green when it starts, and when 5 minutes are up, it will become red. So, that will help you to be certain that you don't lose the time.

I would like to begin by——

Mr. HOCHBRUECKNER. Mr. Chairman.

Mr. TOWNS. Yes.

Mr. HOCHBRUECKNER. Mr. Chairman, if I might, at this point just piggy-back on something that you did say. There are, indeed, many public citizens here who are representing organizations, as well as their own keen personal interest in this issue, many of whom did come thinking that the format was more of a Town Hall meeting.

And, I would like to ask unanimous consent of the subcommittee that if there are any such people who have statements, evidence, things that they would like to make part of the official record, if they would present it to one of the members on the panel here or to yourself that, indeed, we could make that a part of the permanent record, their spoken testimony notwithstanding.

Mr. TOWNS. Without objection, so moved.

At this time, I'd like to call on Dr. Samuel Epstein. Dr. Epstein is professor of occupational and environmental medicine, the School of Public Health, University of Illinois Medical Center.

Dr. Epstein, we're delighted to have you.

STATEMENT OF SAMUEL S. EPSTEIN, M.D., PROFESSOR OF ENVIRONMENTAL AND OCCUPATIONAL MEDICINE, SCHOOL OF PUBLIC HEALTH, UNIVERSITY OF ILLINOIS MEDICAL CENTER, CHICAGO, AND CHAIRMAN, CANCER PREVENTION COALITION INC.

Dr. EPSTEIN. Chairman Towns, distinguished subcommittee members: It's a privilege to testify before you today. I'd like to congratulate you for holding this hearing on the prevention of the disease which impacts so tragically and with such inflationary costs on most American families.

I've been specifically asked to address the steps the National Cancer Institute can take to reduce or prevent exposures to avoidable carcinogens in air, water, food, and the workplace. Besides testifying personally, the views I express reflect the views of a coalition of leading and distinguished experts in this field in cancer prevention, which were released publicly at a February 4, 1992, press conference in Washington, DC.

Now, before testifying on what NCI should do to prevent cancer from avoidable exposures, I should like to document for you what NCI is currently not doing with regard to these critical areas.

First of all, the National Cancer Institute's priorities on preventing cancer due to avoidable, unknowing, and involuntary exposures to industrial carcinogens in air, water, food, and the workplace are minimal in extreme with regard to scientific research, public education, information and intervention programs.

At the coalition conference of February 4, 1992, at which past Directors of NIEHS, NIOSH, and OSHA testified, in a statement entitled, "Losing the War Against Cancer: Need for Public Policy Reforms"—this statement, incidentally, was published in the Congressional Record, by your distinguished chairman, Congressman Conyers, the coalition stated, among other things,

> We express grave concerns over the failure of the "war against cancer" . . . This failure is evidenced by the escalating incidence of cancer to epidemic proportions over recent decades. . . . We express further concerns that the generously funded cancer establishment, the National Cancer Institute (NCI), the American Cancer Society (ACS) . . . have misled and confused the public and Congress by repeated claims that we are winning the war against cancer. In fact, the cancer establishment has continually minimized the evidence for increasing cancer rates which it has largely attributed to smoking and dietary fat, while discounting or ignoring the causal role of avoidable exposures to industrial carcinogens in air, food, water, and the workplace. Furthermore, the cancer establishment . . . have repeatedly made extravagant and unfounded claims for dramatic advances in the treatment and "cure" of cancer . . .

Which basically, for the majority of cancers, has not materially improved for decades.

From 1974 to 1988, the 5-year cancer survival rate in this country, for whites, was 50 percent, and Mr. Chairman, for blacks, it was 38 percent. It's been that for the last 10 years, over 10 years.

Now, responding to congressional concerns, the National Cancer Institute invited me on May 5 of last year to debate—the so-called "Seven Hundred to One Debate"—to present an evaluation of their national cancer program. The detailed criticisms of this program have been published this year in two peer reviewed journals: The International Journal of Health Services and the American Journal of Industrial Medicine. These publications detail evidence on gross imbalance and grave deficiencies in National Cancer Institute policies, programs, and priorities.

To give you a few examples:

In 1986, NCI stated they would reduce cancer rates, cancer mortality rates, by the year 2000, to half the 1980 rates—from 168/100,000 to 84/100,000. In fact, what is happening now, the latest available mortality data—1991—show an actual increase, not a decrease.

National Cancer Institute estimates on the causes of cancer are based on obsolete and invalid analyses of cancer mortality trends from 1933 to 1977. The National Cancer Institute persists in its claims, on the basis of no scientific data whatsoever, that only 4 percent of cancer mortality is due to occupation and 3 percent due to "pollution—and—industrial products."

The National Cancer Institute, until recently, has trivialized increasing cancer rates and tried to relate them exclusively to smoking, ignoring the fact that there are very other major important causes of lung cancer, particularly smoking and occupation and air pollution which can cause up to 30 percent of lung cancers.

The National Cancer Institute trivializes exposure to occupational carcinogens. They say that it's only responsible for a very small percentage of total cancers.

Let me now give you some examples of failed policies of the National Cancer Institute in areas such as public information and interventions, quite apart from research. But, before getting into that, let me tell you what the budget of the National Cancer Institute is. Of a $2 billion budget, my analyses show that less than $50 million, less than 2.5 percent, goes for research, interventions, and any other activities relating to avoidable carcinogenic exposures, industrial carcinogens in air, water, food, and the workplace. The National Cancer Institute has sold the public and Congress with a bill of goods.

Until recently, NCI was claiming that one-third of their budget went on cancer prevention. Under cross-examination from Congressman Obey and criticism from myself, they have retracted this statement and now claim that $350 million goes to "primary prevention."

In fact, when you analyze these data you will find—I repeat—less than $50 million, less than 2.5 percent of the total budget, going to avoidable exposures to carcinogens, avoidable industrial exposures to carcinogens in air, water, food, and the workplace.

A few examples:

In 1938, diethylstilbestrol was clearly shown to be carcinogenic in animals. Did the National Cancer Institute do anything about this? We knew the data on carcinogenicity of DES in experimental animals inducing breast cancer in 1938. Nothing was done about this.

By the late 1970's, we had data on hair dyes showing the relationship of hair dyes to breast cancer. Did the National Cancer Institute issue any public advisory? No, they didn't.

For the last 20 to 30 years, we've had accumulating evidence on a wide range of environmental and occupational exposures relating to breast cancer. For instance, from the 1960's onwards, we have known that many pesticides induce breast cancers in rodents. We've also known from the mid-1970's evidence on selective accumulation of these in breast cancer. This evidence I've fully documented in the attached paper in press in the Internal Journal of Health Services.

The fact is this: The National Cancer Institute has failed to advise the American public of the presence of a wide range of avoidable exposures to carcinogens in air, water, food, and the workplace. Our food is contaminated. Our air is contaminated. Our water is contaminated. And the workplace is contaminated.

Never has there been any active intervention. Never has there been any National Cancer Institute advisory to the public or to the workers on these areas. These statements are documented in great detail in the testimony that I put before you.

I should like, briefly, to conclude with a statement from Dr. John Bailar, who recently addressed the President's cancer panel of the NCI. Dr. Bailar is one of the Nation's leading cancer statisticians. He stated:

> Our cancer death rate continues to climb, while our cancer establishment continues to spend its ever-increasing budget with much the same old focus. We do not see the changes in broad budget allocations and efforts that the growing problem demands. If we do not, we may jeopardize and ultimately lose the support of our elected representatives as well as the public we are committed to serve.

There is little alternative but to conclude that the National Cancer Institute is a runaway institute, responsive to myopic and self-interested professional mindsets fixated on diagnosis, treatment, and basic research, but unresponsive, even indifferent or hostile, to burgeoning national concerns on cancer prevention.

As such, the National Cancer Institute bears a significant responsibility for losing the war against cancer.

With regard to specific reforms, the National Cancer Institute has to be instructed to spend at least half its budget on primary prevention—that's at least $1 billion. The appropriate congressional committees have to insure that this money is really spent on primary prevention to prevent budgetary shell games at which the National Cancer Institute has become expert over the last few years.

The emphasis has got to be informing the public of what avoidable carcinogens are in the air, water, food, and the workplace. We now label food for cholesterol, but we don't label food for carcinogens, and I demand to know why this is the case.

You gentlemen, other Members of Congress, the White House, and every American citizen has the inalienable right to have this information. The National Cancer Institute should have assimilated this information, should have analyzed it, should have systematized it, should have issued public advisories.

So, the first step that needs to be taken, apart from a major shift in NCI budgets and priorities, is labeling and the right to know what avoidable carcinogens there are in the air you breathe and the water you drink and in the food you eat. The National Cancer Institute has been totally silent in the recent debate on food and on contamination of food with pesticides and in the Delaney amendment—no interest whatsoever.

I also detailed for you a series of hostile acts, acts inimical and hostile to cancer prevention, which the National Cancer Institute has effected since our February 4, 1992, coalition of the most distinguished cancer prevention experts in the country.

So, having given the public this right to know this information on avoidable industrial carcinogens, the next stage that we have to do is to phase out manufacture, use, and disposal of industrial carcinogens in our air, water, food, and the workplace, and the National Cancer Institute should provide the scientific leadership.

We're not suggesting that NCI should get into regulation, but we're suggesting—not suggesting, but demanding that the National Cancer Institute provide the scientific basis for saying to Congress: the only way of reducing this cancer epidemic is phasing out avoidable exposures to these carcinogens. They have been silent on this.

And, I repeat again, and I repeat this on behalf not only of myself, but on this very substantial coalition of distinguished national experts, Nobel Laureates, past Directors of major Federal institutes which I've named for you, and about 65 other cancer prevention experts and public health professionals—we demand that action be taken to turn around this runaway institute which, for decades, has deliberately misled Congress and the public.

Thank you, sir.

[The prepared statement of Dr. Epstein follows:]

Huntington Town Hall, Long Island,
New York, 10/30/93

"The Link between Cancer and Environmental Contaminants and Industrial Carcinogens". Testimony before the Human Resources and Intergovernmental Relations Subcommittee, House Committee on Government Operations

Samuel S. Epstein, M. D.
Professor of Environmental and Occupational Medicine
School of Public Health, University of Illinois Medical Center Chicago,
and Chairman of the Cancer Prevention Coalition Inc.

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5. Epstein, S. S.
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TESTIMONY

A. INTRODUCTION

Chairman Towns and distinguished committee members, it is a privilege to testify before you today. May I congratulate you for holding this hearing on the prevention of a disease which impacts so tragically and with such inflationary costs on most U. S. families. I have been specifically asked to address the steps the National Cancer Institute (NCI), and DHHS, can take to reduce or prevent exposures to avoidable carcinogens in air, water, food, and the workplace. In addition to testifying personally, I also offer this testimony on behalf of the Cancer Prevention Coalition Inc., a nationwide coalition of scientists, organized labor, and activist citizen groups (Appendix 1).

Before testifying as to what the NCI should do to prevent cancer from avoidable exposures to environmental and occupational industrial carcinogens, I should like to doument for you what NCI is currently doing, or rather not doing, in regard to these critical concerns.

B. CURRENT NCI PRIORITIES AND PROGRAMS ON CANCER PREVENTION

NCI priorities on preventing cancer due to avoidable, unknowing and involuntary, exposures to industrial carcinogens are minimal in extreme with regard to scientific research, public education and information, and intervention programs (Appendices 2, 3 and 4).

On February 4, 1992, at a Washington, D. C. press conference, a coalition of some 65 leading national experts on cancer prevention and public health, including past directors of NIOSH (Dr. Anthony Robbins), NIEHS (Dr. David Rall), and OSHA (Dr. Eula Bingham), released a statement entitled, "Losing the War Against Cancer: Need for Public Policy Reforms". The full statement (with named endorsers) was subsequently published in the Congressional Record by Cong. John Conyers (Appendix 3), and also independently by Cong. David Obey. The statement charged:

> "Cancer now strikes one in three and kills one in four Americans, with over 500,00 deaths last year. Over the last decade, some 5 million Americans died of cancer and there is growing evidence that a substantial proportion of these deaths was avoidable.
>
> "We express grave concerns over the failure of the 'war against cancer' since its

inauguration by President Nixon and Congress on December 23, 1971. This failure is evidenced by the escalating incidence of cancer to epidemic proportions over recent decades. Paralleling and further compounding this failure is the absence of any significant improvement in the treatment and cure of the majority of all cancers. Notable exceptions are the successes with some relatively rare cancers, particularly those in children.

"A recent report by the American Hospital Association predicts that cancer will become the leading cause of death by the year 2000 and the dominant specialty of American medicine. The costs in terms of suffering and death and the inflationary impact of cancer, now estimated at $110 billion annually (nearly 2% of the GNP), is massive. These costs are major factors in the current health care crisis, with Per-case Medicare payments exceeding those of any other disease.

"We express further concerns that the generously funded cancer establishment, the National Cancer Institute (NCI), the American Cancer Society (ACS) and some twenty comprehensive cancer centers, have misled and confused the public and Congress by repeated claims that we are winning the war against cancer. In fact, the cancer establishment has continually minimized the evidence for increasing cancer rates which it has largely attributed to smoking and dietary fat, while discounting or ignoring the causal role of avoidable exposuresto industrial carcinogens in the air, food, water, and the workplace.

"Furthermore, the cancer establishment (the NCI and ACS), and major pharmaceutical companies have repeatedly made extravagant and unfounded claims for dramatic advances in the treatment and 'cure' of cancer. Such claims are generally based on an initial reduction in tumor size ('tumor response') rather than on prolongation of survival, let alone on the quality of life which is often devastated by highly toxic treatments."

Responding to Congressional and other concerns, the NCI then invited me to elaborate on this coalition statement at their May 5, 1992 National Cancer Advisory Board (NCAB) meeting, at which the President's executive Cancer Panel (PCP), and NCI scientific and administrative staff, and representatives of other Federal agencies were also present. Generalities apart, the NCI offered no substantive rebuttal to the specific criticisms presented. The documented basis of these criticisms has been recently published in the leading international (and peer reviewed) public health policy journal (International Journal of Health Services 23:15-44,1993), and in the leading (and peer reviewed) U. S. industrial medical journal (Appendix 4). These and other recent publications detail gross imbalance and grave deficiencies in NCI policies and priorities on cancer prevention. Examples of these are summarized below:

o NCI's stated objectives on cancer prevention are not only unrealistic, but shifting and discrepant in extreme. From their 1984 objective of reducing cancer mortality by the year 2000 to one-half the 1980 rate (from 168/100,000 to 84/100,000), NCI admitted in 1991 that this goal is unattainable, and that any reduction would be much less (to 130/100,000). However, the latest available mortality data (173/100,000 in 1989) show an actual increase, not a decrease.

o NCI estimates on the causes of cancer are based on obsolete and invalid analyses of cancer mortality trends from 1933-1977, and unjustified assumptions reported over a decade ago (Appendix 4, Table 3); these analyses excluded people over the age of 65 and blacks, just those groups with the highest cancer rates! These unsubstantiated guesstimates ascribe the great majority of all cancers to blame-the-victim or faulty lifestyle factors, while ascribing only 4 percent to "occupation" and 3 percent to "pollution (and) industrial products."

o NCI trivializes the current cancer epidemic and virtually exclusively relates escalating cancer incidence and mortality rates to smoking. However, NCI's own data show that some 75 percent of the increased cancer incidence since 1950 is due to cancers other than the lung (Appendix 4, Table 1). NCI also trivializes other significant causes of lung cancer besides smoking, notably occupation and air pollution, which account for up to one-third of all cases (Appendix 4, Table 4).

o NCI trivializes exposure to occupational carcinogens as a major cause of preventable cancer. This in spite of a plethora of U.S. and international studies over the last two decades which have incriminated a wide range of carcinogenic industrial products and processes as causes of a wide range of cancers. This is also in spite of NIOSH estimates that approximately 11 million workers are still exposed to occupational carcinogens. Contrary to NCI, more authoritative estimates are substantially higher than 4 percent, ranging up to over 20 percent.

o NCI has failed to recognize evidence on the significance of parental exposure to occupational carcinogens, besides home use of pesticides and dietary contamination with pesticides, as major causes of childhood cancer.

o NCI accepts tenuous evidence for the role of high fat diet itself as a major cause of breast and other cancers. This high fat hypothesis is largely based on guesstimates, which have since been retracted by their leading proponent on whom NCI still however relies (Peto, R. Science 235:1562, 1987). Moreover, as evidenced by a series of recent epidemiological studies, evidence for the role of dietary fat itself, as opposed to its carcinogenic contaminants, is at best inconsistent and tenuous (Appendix 5).

o Despite expenditures of over $1 billion on breast cancer research, NCI escalating incidence of breast cancer to avoidable exposures to environmental and occupational carcinogens (Appendices 4 and 5). In none of its amply funded dietary fat studies did NCI even consider, let alone investigate, the role of a wide range of carcinogenic dietary contaminants, including pesticides and estrogens (from their extensive use as growth promoting animal feed additives). Only in response to recent grassroots pressures has NCI belatedly instituted limited research programs in these areas.

o NCI trivializes the role of a wide range of industrial carcinogens which have progressively permeated the environment, air, water, and food, arbitrarily guesstimating their role as responsible for only 3 percent of all cancers. This position ignores an extensive body of toxicological and epidemiological studies on industrial carcinogens, and also the exponential production of synthetic organic chemicals, particularly industrial carcinogens, from one billion pounds in 1940 (dawn of the petrochemical era) to current annual levels of over 400 billion pounds. Illustratively ignored, has been the role of carcinogenic pesticides as causes of childhood and adult cancers (National Research Council, Pesticides in the Diets of Infants and Children, National Academy Press, Washington, D. C., June 1993). This in spite of estimates relating con sumption of common foods with residues of 28 pesticides to 20,000 excess annual cancer deaths, and conservative estimates (based on EPA risk analyses) relating consumption of some 30 food items contaminated with residues of some 30 carcinogenic pesticides to aggregate risks of some 30,000 excess cancer deaths (Appendix 4). Reflecting scientific myopia, on July 2, 1991, NCI announced a joint industry program, "5-A-Day Food for Better Health", to encourage consumption of produce to prevent cancer, with no reference whatsoever to abundant evidence on cancer risks from residues of carcinogenic in the pesticides on produce.

o NCI has failed to systematize and present critical available scientificinformation on cancer prevention to Congress, regulatory authorities and the public:

> "Reflecting professional mindsets and institutionalized conflicts of interest, for over two decades NCI has consistently failed to provide Congress, Federal and other regulatory agencies with scientific information on the importance of primary cancer prevention, with specific reference to reducing avoidable exposure to environmental and occupational carcinogens, and also on fundamental principles of carcinogenesis and epidemiology. Illustrative are carcinogenic dietary contaminants, culminating in the Administration's 1988 revocation of the 1958 Delaney law; this law banned the deliberate addition to food of any level of carcinogen --. 'This critical law was revoked in spite of the overwhelming endorsement of its scientific validity by a succession of expert committees over the past three decades' (Appendix 6). Such failure by NCI contrasts with its stated cancer control objectives recommending interventions with 'other Federal agencies, State agencies, local government, private industry, professional organizations, voluntary organizations and the media' (Appendix 4).

o Analysis of NCI's $2 billion budget amply confirms its minimal priorities on prevention of cancer due to avoidable exposures to occupational and environmental carcinogens. Occupational cancer receives only $19 million (about 1 percent of total annual appropriations). Claims that $645 million (about 30 percent of the budget) are allocated to cancer prevention, and $335 million (about 17 percent of the budget) are allocated to "primary" cancer prevention reflect manipulative shell games and are grossly misleading:

> "With the exception of widely ranging smoking programs, only nominal funding, of $50 million at most, appears obligated for research on avoidable carcinogens in air, water, food, home, and the workplace. Furthermore, there is no evidence of any funding for interventions directed to reducing such avoidable exposures. Not surprising is this (understated) Congressional reaction (Obey, 1992): 'A number of scientists have suggested that cancer prevention receives an even smaller percentage of the budget than what NCI considers primary prevention.'" (Appendix 4)

o In contrast with miniscule allocations to cancer prevention due to avoidable carcinogenic occupational and environmental exposures, the overwhelming bulk of NCI's budget has been and still is allocated to diagnosis, treatment, and basic research. However, in spite of massive and disproportionate support, extending back for decades, survival rates for most cancers have not materially improved for decades (Appendix 4). With regard to basic research, which receives the highest NCI priority, its relevance to cancer in general, let alone to cancer prevention, is more than questionable. This is well illustrated by surprisingly candid admissions by the nation's leading molecular biologists and recipients of hundreds of millions of tax dollar funding (Appendix 4), and also by NCI's intramural programs, such as those dealing with research on a gene linked to homosexuality!

C. PROPOSED REFORMS; WHAT THE NCI SHOULD BE DOING

Key among the reforms proposed by the February 4, 1992 coalition are the following:

"The NCI must give cancer cause and prevention at least equal emphasis, in terms of budgetary and personnel resources, as its other programs combined including diagnosis, treatment and basic research; NCI's current annual budget is $1.8 billion. This major shift in direction should be initiated immediately and completed wtihin the next few years. This shift will also requre careful monitoring and oversight to prevent misleading retention of old unrelated programs under new guises of cancer cause and prevention.

"A high priority for cancer prevention should be a large scale and ongoing national campaign to inform and educate the media and the public, besides Congress, the administration and the industry, that much cancer is avoidable and due to past exposures to chemical and physical carcinogens in air, water, food, and the workplace, as well as to lifestyle factors, particularly smoking.

"The NCI should develop systematic programs for the qualitative and quantitative characterization of carcinogens in air, water,food and the workplace, with particular emphasis on those that are avoidable. Such information should be made available to the general public, and particularly to sub-populations at high risk, by an explicit and ongoing 'right to know' educational campaign, such as the specific labelling of food and consumer products with the identity and levels of carcinogenic contaminants. While taking a lead in this program, the NCI should work cooperatively with federal and state regulatory and health agencies and authorities, industry, public health and other professional societies, labor, and community-based citizen groups.

"The NCI should cooperate with the National Institutes for Occupational Safety and Health, and other agencies to develop large scale programs for monitoring, surveillance and warning of occupational, ethnic, and other sub-population groups at high risk of cancer due to known past exposures to chemical or physical carcinogens.

"In close cooperation with key regulatory agencies and industry, the NCI should initiate large scale research programs to develop non-carcinogenic products and processes as alternatives to those currently based on chemical and physical carcinogens. This program should also include research on the development of economic incentives for the reduction or phase-out of the use of industrial carcinogens, coupled with economic disincentives for their continued use, especially when appropriate non-carcinogenic alternatives are available.

"The NCI should provide scientific expertise to Congress, federal and state regulatory and health agencies and authorities, and industry on the fundamental scientific principles of carcinogenesis including: the validity of extrapolation to humans of data from valid animal carcinogenicity tests; the invalidity of using insensitive or otherwise questionable epidemiological data to negate the significance of valid animal carcinogenicity tests; and the scientific invalidity of efforts to set safe levels or thresholds for exposure to chemical and physical carcinogens. The NCI should stress that the key to cancer prevention is reducing or avoiding exposure to carcinogens, rather than accepting and attempting to 'manage' such risk (in accordance with current regulatory practice).

"The NCI should provide Congress and regulatory agencies with scientific expertise necessary to the development of legislation and regulation of carcinogens. Illustrative of such need is the administration's revocation in 1988 of the 1958 Delaney Amendment to the Federal Food Drug and Cosmetic Act, banning the deliberate addition to food of any level of carcinogen. -- Neither the NCI, nor others in the cancer establishment, provided any scientific evidence challenging the validity of this revocation, including its likely impact on future cancer rates.

"The NCI should substantially expand its intramural and extramural programs on epidemiology research and develop large-scale programs on sensitive human monitoring techniques, including genetic and quantitative analysis of body burdens of carcinogens, and focus them specifically on cancer cause and prevention. The NCI should also take a key role in the design, conduct and interpretation of epidemiological investigations of cancer by federal and state regulatory and health agencies and authorities.

"The NCI should undertake large-scale intramural and extramural research programs to characterize known carcinogenic exposures, both industrial and lifestyle, in terms of their estimated impact on cancer,and the practical feasibility of their avoidability or elimination within defined early periods.

"Continued funding by the NCI of its comprehensive cancer centers should be made contingent on their developing strong community outreach programs in cancer cause and prevention, as opposed to their present and almost exclusive preoccupation with diagnosis and treatment. Centers should also establish tumor registries focused on identifying environmental and occupational carcinogens, and on the surveillance of occupational and other populations at high risk of cancer."

The coalition concluded as follows:

"There is no conceivable likelihood that such reforms will be implemented without legislative action. The National Cancer Act should be amended explicitly to re-orient the mission and priorities of the NCI to cancer cause and prevention. Compliance of the NCI should then be assured by detailed and ongoing Congressional oversight and, most critically, by House and Senate Appropriation committees. However, only strong support by the independent scientific and public health communities, together with concerned grassroots citizen groups, will convince Congress -- of the critical and immediate need for such drastic action."

Events since release of the February 4, 1992 coalition statement more than justify pessimism with regard to the prospects of NCI's responsiveness. Apart from expressions of interest in "scholarly dialogue" by NCI 's Director (at the May 5, 1992 National Cancer Program meeting), NCI programs and priorities remain unchanged or worse. On September 4, 1992, the senior NCI spokesman on questions of cancer prevention, who is also director of the Division of Cancer Etiology (controlling a budget of some $540 million, ostensibly allocated to cancer prevention), supported proposals to scuttle carcinogenicity testing by the

National Toxicology Program (Appendix 7). He even supported proposals that no chemical should ever be classified as carcinogenic until the mechanism of its action was elucidated (an extraordinary proposal in view of the fact that we still do not have this information for any carcinogen). Finally, he trivialized the cancer risks from industrial pollutants such as carcinogenic pesticides in food. NCI's director has repeatedly declined to dissociate his institute from these recklessly irresponsible statements (Appendix 7).

It is becoming incomprehensible to a growing number of cancer prevention experts, besides to a groundswell of grassroots citizen groups, that NCI should still refuse to undertake large scale research, informational and intervention programs on avoidable exposures to carcinogens in food, air, water, and the workplace. NCI has created a vast public informational network dealing with cancer treatment and diagnosis, but not at all for cancer prevention from environmental and occupational carcinogens. Implementation of such programs would create the strong scientific basis for right-to-know initiatives, such as labelling of food with residues of carcinogenic presticides;we now have scientific data justifying labelling of food for cholestorol and fat, but NCI is unwilling or unable to analyze and provide such data for avoidable carcinogenic residues. Who in the White House or Congress could or should resist the inalienable right of U.S. citizens to this information? Such labelling would also create the strong scientific and public policy basis for the orderly phasing out of the manufacture, use and disposal of carcinogenic industrial chemicals, and their replacement with non-carcinogenic alternatives, many of which are currently available.

D. ADMINISTRATION AND DHHS PRIORITIES ON CANCER PREVENTION

The Clinton administration has so far failed to make serious commitments to national concerns on occupational and environmental cancer and disease. The NIOSH budget is now about half its 1983 level (adjusted for inflation). OSHA inspectors, critical to preventing exposure to occupational carcinogens, number only one quarter of Fish and Wildlife inspectors; the Vice President has proposed that industry conduct its own health and safety inspections! Funding for environmental programs by the Centers for Disease Control, (of which NIOSH remains a bureau) and by NIEHS is modest in extreme. Less than five percent of all Superfund money is allocated to cancer and health research. Most recently, a senior

DHHS official has proposed eliminating lead screening programs for children.

NCI's resistance to prioritizing cancer prevention would appear to reflect policies of the current administration and DHHS. Moreover, DHHS has so far remained unresponsive to repeated expressions of concern from leading national experts in cancer prevention and public health. Yet it seems difficult to reconcile the much welcome and aggressive initiatives of the White House on health care reform and cost containment with their early track record of apparent low priority for prevention of cancer and other environmental and occupational disease, whose national costs are inflationary. However, the integrity and commitment of the President to "Putting People First" offers the basis for guarded optimism.

E. CONCLUSIONS

In a September 22, 1993 presentation on "some Recent Trends in Cancer Statistics" to the President's Cancer Panel, John Bailar, the nation's leading authority on cancer statistics, with over 20 years experience as a senior NCI scientist, stated:

> "-- our cancer death rate continues to climb, while our cancer establishment continues to spend its ever increasing budget with much the same old focus. We do not see the changes in broad budget allocations and efforts that the growing problem demands. If we do not, we may jeopardize and ultimately lose the support of our elected representatives as well as the public we are committed to serve." (original emphasis)

There is little alternative but to conclude that the NCI is a runaway institute responsive to myopic and self-interested professional mindsets fixated on diagnosis, treatment, and basic research but unresponsive, even indifferent or hostile, to burgeoning national concerns on cancer prevention. As such, the NCI bears a significant responsibility for losing the war against cancer.

Radical reforms in federal cancer policies and leadership are well overdue. Central to these are redefining the mission of NCI to direct the highest priorities to prevention. The nation needs a Manhattan type project on cancer prevention, with sharply expanded emphasis on coordinated research, education and information, and intervention programs. I feel confident that this Committee will play a strong leadership role in initiating and implementing such reforms.

APPENDIX 1

3/1/93

CANCER PREVENTION COALITION Inc.

STATEMENT OF PURPOSE

A misplaced emphasis on the diagnosis and treatment of cancer, rather than its prevention, coupled with ineffective regulation of cancer-causing agents (carcinogens) in air, water, food and the workplace is responsible for escalating cancer rates and an annual death toll of some 500,000. The high and inflationary costs of cancer are a major cause of the current health care crisis.

The newly-formed CANCER PREVENTION COALITION (CPC), represents a unique coalition of independent experts in public health and cancer prevention, and a wide range of other concerns and interests, including organized labor, and public interest and citizen groups. Key among these is Citizen Action, whose nationwide membership provides an established mechanism for public education, outreach, and advocacy. CPC proposes a comprehensive strategy of outreach, education and advocacy to establish prevention as the nation's top cancer policy.

A major strategy will focus on reversing the priorities of the National Cancer Institute (NCI), which should be the chief advocate of cancer prevention. Instead, NCI misleads the public and policy-makers into believing that we are winning the war against cancer, and trivializes the role of avoidable exposures to industrial carcinogens as major causes of modern cancer.

The short term objective of CPC is the development of radical policy changes, toxic use reduction, designed to phase out the manufacture, use and disposal of industrial carcinogens, and their replacement by less hazardous products and processes. These policies will prevent risks of cancer from avoidable exposures to environmental and occupational carcinogens, instead of currently ineffective efforts directed at "risk management".

The ultimate and longer term objective of CPC is to win the war against cancer by reducing modern epidemic cancer rates to their pre-1940 levels.

MEMBERSHIP

CPC founding members include Drs. Samuel Epstein, Eula Bingham, and William Lijinsky, who each have over three decades expertise in: carcinogenesis and prevention of cancer due to pesticides and other industrial carcinogens in food, air, water and the workplace; monitoring of legislative and regulatory cancer policies; monitoring federal cancer policies; and advising public interest organizations and organized labor. Additionally, Epstein is a former consultant on toxics to the Senate Committee on Public Works and the Environment, author of The Politics of Cancer, President of the Rachel Carson Trust from 1975-1991, and also has had extensive involvement and contacts with the media; Lijinsky was former Director of the Chemical Carcinogenesis Program at NCI's Frederick Cancer Research Center; and Bingham was Assistant Secretary of Labor, Occupational Safety and Health Administration in the Carter Administration. The fourth founding member, Ira Arlook, is Executive Director of Citizen Action, the nation's largest consumer and environmental organization with 3 million dues-paying members in 33 states.

CPC's current membership is listed below:

Dean Abrahamson, Professor Public Affairs, University of Minnesota.
Rita Arditti, Women's Community Cancer Project, Cambridge, MA.
Nicholas Ashford, Professor of Technology and Public Policy, M.I.T.
Louis Beliczky, Director Industrial Safety of the United Rubber Workers, AFL-CIO.
Rosalie Bertell, President International Institute of Public Health Concern, Toronto, Canada.
Elizabeth Bourque, Doctor of Public Health, Jamaica Plan, Massachusetts
Judith Brady, Women's Cancer Resource Center, Berkeley, Califonia
Irwin Bross, President Metatechnology, Buffalo.
Kirk Brown, Professor Soil and Crop Sciences, Texas A&M University
Walter Burnstein, President Food & Water Inc., Denville, New Jersey
David Christiani, Associate Professor Occupational Medicine, Harvard School of Public Health.
Richard Clapp, Director John Snow Institute, Boston.
Eve Clute, Director Institute of Body Therapeutics, Maui Hawaii
Paul Connett, Professor Chemistry, St. Lawrence University, New York
Donald Dahlsten, Professor Natural Resources, University of California, Berkeley.
Brian Dolan, Internist, Santa Monica, California
Michael Ellenbecker, Professor Work Environment, University of Massachusetts Lowell
Richard Evans, Oncologist, Houston, Texas.
Adriane Fugh-Berman, Medical Advisor Women's Health Network, Washington, D.C.
Richard Garcia, Entomologist, University of California, Berkeley
Jack Geiger, Professor Community Medicine, CUNY Medical School, New York.

Jay M. Gould, Director Radiation and Public Health Project, Commission for Racial Justice of the United Church of Christ, New York.
Michael Gray, Chief-of-staff, Benson Hospital, Arizona.
Stephen Hessl, Co-Director Occupational Medicine, Cook County Hospital, Chicago.
Thomas Higginbotham, Physician Colorado Springs, CO
William Holden, Director Defined Health Care Research, New York.
Kimberley Kunz, Women's Breast Resource Cener, Berkeley, CA
Marc Lappe, Professor Health Policy and Ethics, University of Illinois College of Medicine, Chicago
Marvin Legator, Professor Community Health, University of Texas, Galveston.
Brian Leibovitz, Editor-in-Chief, Journal Optimal Nutrition, Davis, California.
Rodney Leonard, Director Community Nutrition Institute, Washington, D.C.
Charles Levenstein, Professor Work Environment, University of Massachusetts Lowell.
Edward Lichter, Professor Preventive Medicine, University of Illinois, Chicago.
Susan Liroff, Director Women's Cancer Resource Center, Berkeley, California.
Thomas Mancuso, Emeritus Professor Occupational Medicine, University of Pittsburgh.
Tony Mazzochi, Presidential Assistant, Oil Chemical and Atomic Workers, Denver.
Michael McCann, Director Center for Safety and the Arts, New York
David McGrath, President Rachel Carson Trust, Washington, D.C..
David Monroe, Toxicologist, Oak Harbor, Washington.
Vicente Navarro, Professor Health Policy, Johns Hopkins University.
Herbert Needleman, Professor Psychiatry, University of Pittsburgh.
The Hon. Gaylord Nelson, The Wilderness Society, Washington, D.C.
John Olney, Professor Medicine, Washington University, St. Louis, MO.
Peter Orris, Co-Director Occupational Medicine, Cook County Hospital, Chicago.
Beverly Paigen, Senior Scientist, The Jackson Laboratories, Bar Harbor, Maine.
Esther Peterson, Washington, D.C.
Michael Plewa, Professor Genetics, University of Illinois Champaign
Lesley Reid, Chairman, Labor Liaison Committee, Sierra Club, Pine Mountain, California.
Brandon Reines, Director Center For Health Science Policy, Washington, D.C.
Florence Rivas, Attorney, Boca Raton, Fl.
Kenneth Rosenman, Professor of Medicine, Michigan State University, Lansing.
Ruth Ruttenberg, Ruttenberg Associates, Bethesda, MD.
Arnold Schechter, Professor Preventive Medicine, SUNY, Binghamton, NewYork.
Leonard Schroeter, American Trial Lawyers Association, Seattle, Washington.
Jannette Sherman, Internist, Alexandria, Virginia.
Victor Sidel, Distinguished University Professor Social Medicine, Albert Einstein College of Medicine, New York.
Cha Smith, Director Washington Toxics Coalition, Seattle, Washington.
John Spratt, American Cancer Society Professor Oncology and Professor Health Systems, Brown Cancer Center, University of Louisville Medical School, Kentucky.
Sandra Steingraber, Professor Biology, Columbia College Chicago.
David Steinman, author/journalist, Los Angeles.
Theodore Sterling, Professor Computer Sciences, Simon Fraser University, Canada.
Ernest J. Sternglass, Emeritus Professor Radiological Physics, University of Pittsburgh Medical School
Marie Swanson, Director Michigan State University Cancer Center.
Joel Swartz, Epidemiologist, Berkeley, California.
Daniel Teitelbaum, Colorado School of Mines, University of Colorado, Denver.

James Unland, President Unland Insurance Company, Pekin, Illinois.
George Wald, Nobel Laureate Harvard University.
Bailus Walker, Dean University Oklahoma School of Public Health.
Ann Waterman,Malathion Action Now, Los Angeles.
Michael Withey, Attorney, Seattle, WA
Charles Wurster, Professor Biology, Southern Illinois University, Edwardsville, Illinois.
Arthur Zahalsky, Professor Immunology, Southern Illinois University, Edwardsville, IL.

APPENDIX 2

EXTENSIONS OF REMARKS

ARE WE LOSING THE WAR AGAINST CANCER?

HON. HENRY A. WAXMAN

OF CALIFORNIA

IN THE HOUSE OF REPRESENTATIVES

Wednesday, September 9, 1987

Mr. WAXMAN. Mr. Speaker, just over 15 years ago, the country declared a war on cancer. Today, cancer is still the major killing disease in the industrialized world. With over 900,000 new cases and 450,000 U.S. deaths last year, cancer has now reached epidemic proportions.

Last month, the Subcommittee on Health and the Environment received a very important statement from Dr. Samuel Epstein, professor of occupational and environmental medicine at the University of Illinois Medical Center. Dr. Epstein, one of our Nation's leading cancer researchers, provides answers to who's responsible for the rising cancer rates and what we need to do about it. The statement follows:

LOSING THE WAR AGAINST CANCER: WHO'S TO BLAME AND WHAT TO DO ABOUT IT—A POSITION PAPER ON THE POLITICS OF CANCER, 1987[1]

(By Samuel S. Epstein, M.D.)

THE FACTS

Increasing cancer rates

Cancer is now the only major killing disease in the industrialized world whose rates are sharply rising.[2] In contrast, there have been major reductions in deaths from cardiovascular disease, still the number one killer in the U.S., probably because of a recent decline in smoking and attention to diet and exercise.

With over 900,000 new cases and 450,000 U.S. deaths last year, cancer has now reached epidemic proportions with an incidence of one in three and a mortality of one in four. Analysis of overall cancer rates, standardized for age, sex and ethnicity, has demonstrated steady increases since the 1930s, with more recent sharp annual increases in incidence rates by some 2% and in morality rates by some 1%. Striking confirmation of these recent increases comes from estimates of the lifetime probability of getting cancer for people born a different times. For white males born in 1975 to 1985 for instance, the probability of developing cancer has risen from 30 to 36% and from 19 to 23% for dying from cancer. Such increases in overall cancer rates are also reflected in increasing rates for cancers of organs including lung, breast, colon, prostate, testis, urinary bladder, kidney, and skin, malignant melanoma and lymphatic/hematopoietic malignances, including non-Hodgkin's lymphoma;[3] lung cancer is responsible for about one-third of the overall recent increase in incidence rates. It should be stressed that some 75% of all cancer deaths occur in people over 55 years, and that recent increases are largely restricted to these ages.

Static cure rates

The overall cancer "cure rate", as measured by survival for over five years following diagnosis, is currently 50% for whites but only 38% for blacks. There is no evidence of substantial improvements in treatment over the last few decades, during which five year survival and age-adjusted mortality rates for the major cancer killers, lung, breast and colon, besides for most other organs, have remained essentially unchanged. The only improvements have been for cancer of the cervix, and for relatively rare cancers, such as testicular seminomas, Hodgkin's disease and childhood leukemias treated with radiation and/or chemotherapy. Apart from immediate toxicity, such treatment, while effective, can increase the subsequent risk of developing a second cancer by up to 100 times.

Increasing carcinogenic exposures

Cancer is an age-old and ubiquitous group of diseases. Its recognized causes and influences are multifactorial and include natural environmental carcinogens (such as a aflatoxins and sunlight), lifestyle factors, genetic susceptibility, and more recently industrial chemicals. Apart from modern lifestyle factors, particularly smoking, increasing cancer rates reflect exposure to industrial chemicals and run-away modern technologies whose explosive growth has clearly outpaced the ability of society to control them. In addition to pervasive changes in patterns of living and diet, these poorly controlled technologies have induced profound and poorly reversible environmental degradation, and have resulted in progressive contamination of air, water, food and workplaces with toxic and carcinogenic chemicals, with resulting involuntary exposures.

With the dawn of the petrochemical era in the early 1940s, by when technologies including fractional distillation of petroleum, catalytic and thermal cracking and molecular splicing became commercially established, annual U.S. production of synthetic organic chemicals was about one billion pounds. By the 1950s, this had reached 30 billion pounds, and by the 1980s over 400 billion pounds annually. The overwhelming majority of these industrial chemicals has never been adequately, if at all, tested for chronic toxic, carcinogenic, mutagenic and teratogenic effects, let alone for ecological effects, and much of the limitedly available industrial data is at best suspect.

Occupational exposure to industrial carcinogens has clearly emerged as a major risk factor for cancer.[4] The National Institute for Occupational Safety and Health (NIOSH) estimates that some 10 million workers are now exposed to 11 high volume carcinogens. Five to 10-fold increases in cancer rates have been demonstrated in some occupations. Also persuasive are British data on cancer mortality by socio-economic class, largely defined by occupation, which show that the lowest class, particularly among males, has approximately twice the cancer mortality rate of the highest class.

Living near petrochemical and certain other industries in highly urbanized communities increases cancer risks, as evidenced by clustering of excess cancer rates; high levels of toxic and carcinogenic chemicals are deliberately discharged by a wide range of industries into the air of surrounding communities. Fall-out from such toxic air pollutants is also an important source of contamination of surface waters, particularly the Great Lakes. While there still are no regulatory requirements for reporting and monitoring these emissions, unpublished government estimates indicate that they are in excess of 3 billion pounds annually.[5]

Another example of run-away technologies is the hazardous waste crisis. From the disposal of under one million tons of hazardous wastes in 1940 to well over 300 million tons annually in the 1980s, in excess of one ton per person per year, the industries involved—fossil fuel, metal mining and processing, nuclear, and petrochemical—have littered the entire land mass of the U.S. with some 50,000 toxic waste landfills, 20,000 of which are recognized as potentially hazardous, 170,000 industrial impoundments (ponds, pits and lagoons), 7,000 underground injection wells, not to mention some 2.5 million underground gasoline tanks, many of which are leaking. Not surprisingly, an increasing number of rural and urban communities have found themselves located on or near hazardous waste sites, or downstream, down-gradient or down-wind. Particularly alarming is growing evidence of contamination of ground water from such sites, contamination which poses grave and poorly reversible hazards for centuries to come.

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[1] Based on keynote presentations at the National Safety and Health Conference of the International Association of Machinists, Washington, D.C., March 9, 1987, the Fifth National Pesticide Forum of the National Coalition Against the Misuse of Pesticides, Washington, D.C., March 21, 1987, and the Conference on Global Development and Environment Crisis, Friends of the Earth (Sahabat Alam), Penang, Malaysia, April 8, 1987. Copyright, 1987, Samuel S. Epstein

[2] Just by way of quantitative contrast, mortality from AIDS (another eminently preventable disease) although highly alarming if not catastrophic, is relatively low. About 33,000 cases, more than half already fatal, have been reported since 1981 when the disease was first detected; additionally, it is estimated that 2-3 times as many Americans suffer from advanced symptoms of the AIDS-related complex which often progresses to frank AIDS. Rapidly increasing numbers of cases, totalling some 270,000, are projected by 1991.

[3] It should, however, be noted that there have been substantial decreases in rates for stomach and cervix, and less so, for rectal cancer.

[4] In 1978, a blue ribbon governmental commission (under the auspices of then H.E.W. Secretary Califano) estimated on the basis of the only available exposure data, estimated that up to 38% of all cancers in coming decades would reflect past and continuing exposures to just six high volume occupational carcinogens. In spite of the recognized limitations of these estimates, both in the direction of overestimating exposure to certain of the named carcinogens, particularly asbestos, and failure to reflect a wide range of other possibly more significant exposures, their magnitude was surprisingly confirmed by industry consultants, Stallones and Downs of the University of Texas School of Public Health, in a confidential report commissioned by the American Industrial Health Council.

[5] The Environmental Protection Agency has diverted attention away from its failure to regulate such toxic emissions, although so authorized by Sec. 112 of the 1970 Clean Air Act, by attempting to shift responsibility to local and state agencies, and by a barrage of poorly supportable claims that indoor air pollution, from pollutants such as cigarette smoking, radon and pesticides, is a more important regulatory target than toxic air emissions. In spite of this near exclusionary emphasis on indoor air pollution, EPA still refuses to ban the continued use of carcinogenic pesticides, notably Chlordane and Aldrin used extensively for domestic termite treatment.

Environmental contamination with highly potent carcinogenic pesticides has reached alarming and pervasive proportions. Apart from high level exposure of workers in manufacturing, formulating and applicating industries, contamination of ground and surface waters has become commonplace. Residues of ethylene dibromide in excess of 1,000 ppb in raw grains, cereals and citrus fruits have been well known to industry and the Environmental Protection Agency (EPA) as long as ten years after its very high carcinogenicity was first demonstrated; not until 1984 however, did EPA develop a 30 ppb tolerance, which was rejected by the Commonwealth of Massachusetts and the States of New York and Florida, and replaced by much lower and less hazardous levels. While the exact numbers are uncertain, it is probable that tens of millions of homes nationwide are contaminated with varying levels of chlordane/heptachlor, pesticides still registered by EPA for termite treatment. It should be noted that, on the basis of extensive hearings some 14 years earlier, the Agency concluded that exposure to such pesticides posed an "imminent hazard" due to cancer besides other chronic toxic effects, leading to a subsequent ban on their agricultural uses.

Much cancer today reflects events and exposures in the 1950s and 60s. Production, uses and disposal of synthetic organic and other industrial carcinogens were then minuscule compared to current levels, which will determine future cancer rates for younger populations now exposed. There is every reason to anticipate that even high current cancer rates will be exceeded in coming decades.

While most concern has understandably focused on increasing cancer rates, these substantially underestimate the extent and scope of the public health effects of environmental pollutants. Only a small proportion of the tens of thousands of petrochemicals in commerce, well under 500, are carcingoenic. However, many of these, together with other non-carcinogenic petrochemicals, can induce other chronic toxic effects, including neurological, respiratory, reproductive, hepatic and probably immunological diseases, whose true causation is generally not suspected let alone investigated.

WHO'S TO BLAME

Industry

Twentieth century industry has aggressively pursued short-term economic goals, uncaring or unmindful of harm to workers, local communities and the enviroment. So far, industry has shifted responsibility for such costs and harm to society-at-large. Belated governmental efforts to control polluting industries have generally been neutralized by well organized and financed opposition. Excepting special purpose legislation for drugs, food additives and pesticides, there were no regulatory requirements for pre-testing industrial chemcials until the 1976 Toxic Substance Control Act, legislation which the industry had stalled for years, and which is now honored more in the breach than in the observance.

Apart from failure to pre-test most chemicals, key in industry's anti-regulatory strategy has been the generation of self-serving and misleading data on toxicology and epidemiology; besides on regulatory costs and cost-benefit analyses. The track record of such unreliable and often fraudulent data is so extensive and well documented as to justify the presumption that much industry data must be treated as suspect until proven otherwise.

Attempts by the Carter Administration to develop comprehensive, "generic" regulation of occupational carcinogens, later reversed by the Reagan Administration, were attacked by the Manufacturing Chemists Association, which created the American Industrial Health Council to organize opposition. Such reactions generally reflect reflex ideology and short-sighted preoccupation with perceived self-interest rather than with efficiency and economy. The virtual uniformity of industry opposition to regulation is in marked contrast to the heterogeneity of size and interests of the industries involved. Regulation has, in fact, generally resulted in substantial improvements in industrial efficiency and economy, particularly in large industries, by forcing development of technologies for recovery and recycling of valuable resources. A deplorable result of regulation, however, has been and continues to be export of the restricted product or process to the so-called lesser developed countries.[6]

Apart from well documented evidence on control and manipulation of health and environmental information, industry has used various strategies to con the public into complacency and divert attention from their own recklessness and responsibility for the cancer epidemic. Key among these is the "blame-the-victim" theory of cancer causation, developed by industry scientists and consultants and a group of conservative pro-industry academics, and tacitly supported by the "cancer establishment." This theory emphasizes faulty lifestyle, smoking, and fatty diet, sun bathing or genetic susceptibility, as the major cause of preventable cancer, while trivializing the role of involuntary exposures to occupational and environmental carcinogens. Another misleading diversion in the claim that there is no evidence or recently increasing cancer rates other than lung cancer, for which smoking is given the exclusive credit. While the role of lifestyle is obviously important and cannot be ignored, the scientific and exclusionary basis of this theory is as unsound as it is self-serving. Certainly, smoking is a major, but not the only, cause of lung cancer. Evidence such as the following clearly incriminates the additional role of exposure to occupational carcinogens and carcinogenic community air pollutants: some 20% of lung cancers occur in non-smokers; there have been major recent increases in lung cancer rates in non-smokers; an increasing percentage of lung cancer is of a histological type (adenocarcinoma) not usually associated with smoking; high lung cancer rates are found with certain occupational exposures independent of smoking; and excess lung cancer rates are found in communities where certain major industries are located. The chemical industry clearly uses tobacco as a smoke screen to divert attention from the role of carcinogenic chemicals in inducing lung cancer besides other cancers.

When it comes to diet, the much touted role of high fat consumption, while clearly linked to heart disease, is based on tenuous and contradictory evidence with regard to breast and colon cancers. The evidence certainly does not justify the wild claims by lifestyle theorists that some 30 to 40% of all cancers are due to faulty diet. For instance, a 1982 National Academy of Sciences report concluded that "— in the only human studies in which the total fiber consumption was quantified, no association was found between total fiber consumption and colon cancer." Similarly, a large scale 1987 study, based on the eating habits of nearly 90,000 nurses, concluded that "— there is no association between dietary fat and breast cancer."

Another illustration of grossly misleading strategies relates to the identification of chemical carcinogens. When a particular chemical or product is threatened with regulation on the basis of animal carcinogenicity tests, the industry invariably challenges the significance of these tests, while routinely using negative test results as proof of safety. At the same time industry insists on the need for long-term prospective epidemiological investigations to obtain definitive human evidence. To test this apparent reliance on direct human evidence, researchers at Mt. Sinai Hospital in New York compiled a list of some 100 chemicals accepted as carcinogenic on the basis of animal tests, but for which no epidemiological information is available, and sent this list to some 80 major chemical industries. Respondents were asked whether any of the listed carcinogens were in use and, if so, whether epidemiological studies had been conducted, whether they were being conducted, or whether it was intended to conduct them in the future, and if not, why not. The responses were revealing. The great majority of those industries using particular carcinogens replied that they had done no epidemiological studies, were not doing any, and didn't intend to do any for various reasons, including alleged difficulty, impracticality, expense, or because of their belief that these chemicals could not possibly be carcinogenic to humans. A perfect catch-22. Knock the animal tests and insist on human studies, but make sure that the human studies are never done.

Industry positions are vigorously advocated by trade associations, such as the Chemical Manufacturers Association, public relations firms, such as Hill and Knowlton, front organizations, such as the American Council on Science and Health (the contributions of whose director, Whelan, have been aptly characterized as "voodoo science"), and lay writers such as Efron (who charges that the American scientific community has been terrorized into submission by environmental "apocalyptics"). Disturbingly, another major source of support for anti-regulatory strategies is a stable of academic consultants who advance the industry position in arenas including the scientific literature, federal advisory committees, and regulatory and congressional hearings.[7]

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[6] Information on such exports is being systematized by Consumer Interpol, a program of the International Organization of Consumers Union (IOCU) based in Penang, Malaysia, which promotes protection for the consumer from dangerous products. The participants in this network are consumer, environmental, health and other citizen groups concerned about unrestricted trade in hazardous substances. Besides the global dissemination of such hazards, the multinational corporations involved are also responsible for the loss of U.S. jobs and their replacement by cheap "expandable" foreign labor.

[7] These consultants include: MacMahon, a Harvard epidemiologist who has cleared his contracted studies with industry before submitting them for publication; Demoupoulos, a pathologist at NYU Medical Center who claims that asbestos and vinyl chloride are weak carcinogens and that the high cancer mortality rates in New Jersey are due to poor treatment by foreign trained doctors in that state; Olson, a clinician at Pittsburgh University School of Medicine who has testified that benzene cannot be carcinogenic in humans because it does not induce tumors in animals; Hayes, ex-CDC and Vanderbilt University School of Medicine, a toxicologist repeatedly on record as rejecting the human significance of animal carcinogenicity data on organochlorine pesticides; and Harbison, a toxicologist from University of Arkansas Medical School.

Government

Presidents play a powerful role in setting national public health priorities, not unnaturally reflecting their own political agendas. Reagan, however, is unique in having run for office on an ideological anti-regulatory platform, and in having then systemstically used his office to implement this ideology, often in contravention to the spirit and letter of the law. Reagan has thus neutralized legislative mandates on controls of toxic and carcinogenic exposure by frontal assaults on regulatory agencies.[8] Strategies employed include: staffing senior positions with unqualified, ideologically selected staff hostile to their agency mandates; budget cutting; insisting on formal cost-benefit analyses which focus on industry costs with little or biased consideration of costs of failure to regulate and which effectively stalls the regulatory process; illegal, behind closed doors meetings with industry; and making regulation dependent on the Office of Management and Budget with its subservience to the White House. An informative example is the White House decision to block the $1.3 million 1984 request by the National Institute for Occupational Safety and Health (NIOSH) to notify some 200,000 workers of risks from previously undisclosed exposure to workplace carcinogens, as identified in some 60 government studies, in order to enable medical follow-up and early diagnosis of cancer. The reason for this refusal of modest funding seems to have been a desire to shield corporations from possible legal claims.[9] Such a track record justifies the conclusions of a 1984 Congressional Study Group report that "efforts to protect public health and the environment from the dangers of toxic pollution have ground to a standstill under the Reagan Administration . . . [which was charged with being] a public health hazard."

The U.S. Congress has become sensitized to public health and environmental concerns, exemplified in a plethora of legislation in recent decades.[10] Such legislation has evolved fragmentarily, reflecting particular interests and priorities. New laws have focused on individual media, air, water, food or the workplace, or on individual classes of products or contaminants, such as pesticides or air pollutants, with little or no consideration of needs for more comprehensive and integrated approaches. Furthermore, legislative language traditionally has been ambigous, thus allowing maximal regulatory discretion to bureacracies which in some instances, have subsequently become closely associated with or even "captured" by the regulated industries. A noteworthy exception is the 1958 Delaney Amendment to the Federal Food Drug and Cosmetic Act, with its absolute prohibition against the deliberate introduction of any level of carcinogen into the food supply. Even so, the Reagan FDA is re-defining the Delaney Amendment to allow carcinogenic food additives at levels alleged to be devoid of significant risk.

Congress has also tended to abdicate decision-making to scientific authority (or perceived authority), rather than questioning its basis in the open political arena. Of particular importance was passage of the 1971 Cancer Act in response to orchestrated pressures from the "cancer establishment", the National Cancer Institute (NCI), American Cancer Society (ACS), and clinicians aggressively pushing chemotherapy as a primary cancer treatment. The cancer establishment misled Congress into the unfounded and simplistic view that the cure for cancer was just around the corner, *provided* that Congress made available massive funding for cancer treatment research. The Act did just this, while failing to emphasize needs for cancer prevention, and also gave the NCI virtual autonomy from the parent National Institutes of Health, while establishing a direct chain of command between the NCI and the White House. Some 18 years and billions of dollars later, Congress still has not yet appreciated that the poorly informed special interests of the cancer establishment have minimized the importance of and failed to adequately support critically needed cancer prevention efforts. Nor has Congress appreciated the long overdue need for oversight on the conduct and priorities of the NCI. Given the heterogeneity of congressional interests, the complexity of the problem involved, the heavy industry lobbying, the indifference of the general scientific community and the well orchestrated pressures of the cancer establishment, it is not surprising that Congress has still to recognize that we are losing the war against cancer.

Until recently, state governments have largely deferred to federal authority, exercising relatively minor roles in cancer prevention. Reagan's federal de-regulatory efforts have begun to reverse this relationship. Regulatory actions against carcinogens are now emerging at the state level, such as the banning of chlordane/heptachlor and aldrin/dieldrin for termite treatment by Massachusetts and New York, banning of daminozide (Alar) for apple ripening and tough restrictions on ethylene dibromide food tolerances by Massachusetts, and informative occupational labeling laws by various states, such as the "right-to-know" workplace legislation of New Jersey. Some such state initiatives have evoked federal preemption by restricted regulations, such as the 1983 Hazard Communication Standard of the Occupational Safety and Health Administration, is striking paradox to the Reagan ideology of the new federalism and getting big government off the backs of the people. In February 1987, a coalition of labor and citizen organizations asked the U.S. Court of Appeals to enforce its 18-month-old order directing OSHA to expand coverage of its communication standard from manufacturing to all workers. In an apparent about face turn, the Chemical Manufacturers Association is supporting the expansion in conformity with regulations developed for various states.

The cancer establishment

The cancer establishment still continues to mislead the public and Congress into believing that "we are winning the war against cancer", with "victory" possible only given more time and money. The NCI and ACS also insist that there have been major advances in treatment and cure of cancer, and that there has been no increase in cancer rates (with the exception of lung cancer which is exclusively attributed to smoking). Yet, the facts show just the contrary.

The cancer establishment periodically beats the drum to announce the latest "cancer cure" and dramatic "breakthrough". These announcements reflect optimism and wishful thinking, rather than reality. The extravagant and counterproductive claims for interferon as the magic cancer bullet of the late 70s have been followed by the unpublicized recognition of its limited role in cancer treatment.[11] The latest NCI "breakthrough" claims for interleukin-2 as a cancer cure are grossly inflated and rest on questionable data. These claims fail to reflect the devastating toxicity and lethality of this drug, and gloss over the high treatment costs, which can run into six figures. Equally questionable are claims by the NCI and ACS that overall cancer survival rates have improved dramatically over recent years. These claims, based on "rubber numbers" according to one prominent critic, ignore factors such as "lead-time bias", earlier diagnosis of cancer resulting in apparently prolonged survival even in the absence of any treatment, and the "over-diagnosis"of essentially benign tumors, particularly of the prostate, breast and thyroid, as malignant. Defensively revealing is the recent finger-pointing by the director of the NCI, DeVita, at community physicians for using inadequate doses of chemotherapy drugs as the "real" reason why cancer cure rates are no better than they are.

The NCI misrepresentations are well reflected in budgetary priorities which are largely and disproportionately directed to cancer treatment research, to the neglect of cancer prevention. Even the very modest funding on cancer prevention is largely directed to endorsing industry's "blame-the-victim" concept of cancer causation. Thus, the NCI exaggerates the role of tobacco for a wide range of cancers besides lung, and treats as fact the slim and contradictory evidence relating diet to colon, breast, and other cancers. Apparently still oblivious to mounting criticisms, the NCI continues to vigorously propagate these misrepresentations. A 1986 NCI document on cancer control objectives, the executive summary of which fails to even mention environmental and occupational exposures to carcinogens and focuses on diet and tobacco as the major causes of cancer, rashly promises that annual cancer mortality rates could be reduced by 50% by the year 2,000.

More disturbing than indifference to cancer prevention is evidence uncovered in

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who in 1980 testified as a governmental witness that rodents are "good predictors of human cancer risk", and who, as an industry expert, testified just the opposite in 1985.

[8] Such successes of the Reagan Administration at the regulatory level are, however, in striking contrast to its failure to make any impression on the scientific underpinning of public health and environmental regulations. For instance, a 1985 report by the Office of Science and Technology Policy of the White House clearly affirmed such critical tenets as the value of animal carcinogenicity data in extrapolating to human risk, and the inability to set "safe levels or thresholds" for exposure to carcinogens.

[9] On February 28, 1987, hearings were held before the Labor and Human Resources Committee on a bill sponsored by Senator Metzenbaum to require the Department of Health & Human Services to notify past or present workers known to be at risk of cancer and other occupational diseases. To the annoyance of Republican Committee members, NIOSH officials supported the bill, which was opposed by Administration spokesmen who claimed that it would duplicate existing efforts and generate "too much litigation". The senior dissenting officials received a subsequent "dressing down" from the Administration. However, unexpected support for the bill on March 27, 1987 came from the 3000-member American Electronics Association, a trade group, and from I.B.M., the Digital Equipment Corporation and the General Electric Company.

[10] Congress, however, has yet to recognize the need to consider certain industry practices from the perspective of white collar crime. White collar crime legislation has heretofore been exclusively directed to economically motivated crimes with economic consequences, such as anti-trust violations. Efforts, such as the 1979 and 1984 bills by Cong. John Conyers (H.R. 4973 & S350), to extend such legislation to economically motivated crimes with public health or environmental consequences, resulting from willful suppression or "non-disclosure" of risks from hazardous products and processes, have not yet may be measured in countless cancer deaths.

[11] Interferon is particularly effective, if not often curative, for two rare neoplasms—hairy cell leukaemia and juvenile larynegeal papillomatosis.

September 1982 by Cong. Dave Obey that the NCI has pressured the International Agency for Research on Cancer (IARC), funded in part by the NCI, to downplay the carcinogenicity of benzene and also formaldehyde in IARC monographs which review and rank the carcinogenicity data on industrial and other chemicals. Such evidence is noteworthy since, contrary to the scientific literature and its own explicit guidelines, IARC has also downgraded the carcinogenicity of other carcinogenic industrial chemicals, such as the pesticides aldrin/dieldrin and chlordane/heptachlor, and the solvents trichloroethylene and perchloroethylene.[12]

Following nearly a decade of fruitless discussions with the ACS, at a February 7, 1987 press conference, a national coalition of major public interest and labor groups headed by the Center for Science in the Public Interest (and the author of his position paper), and supported by some 24 independent scientists, charged that the ACS "is doing virtually nothing to help reduce the public exposure to cancer causing chemicals.—Despite its promises to the public to do everything to 'wipe out cancer in your lifetime', the ACS fails to make its voice heard in Congress and the regulatory arena, where it could be a powerful influence to help reduce public exposure to carcinogens." More specific criticisms included,the following:

ACS fails to support, and at times has been hostile to, critical legislation that seeks to reduce or eliminate exposure to environmental and occupational carcinogens. For example, ACS refuses to join a coalition of major organizations, including the March of Dimes, American Heart Association, and American Lung Association, to support the Clean Air Act. ACS has rejected requests from Congressional subcommittees, unions, and environmental organizations to support their efforts to ban or regulate a wide range of occupational and environmental carcinogens.—Giant corporations, which profit handsomely while they pollute the air, water and food with cancer causing chemicals, must be greatly comforted by the ACS's silence.

ACS's record on supporting efforts to ban carcinogens is dismal. Often ACS's statements are expressly or implicitly hostile to regulation.

ACS's approach to cancer prevention largely reflects a "blame the victim" philosophy, which emphasizes faulty lifestyles, rather than workplace or environmental carcinogens. For instance, ACS blames the higher incidence of cancer among blacks primarily on their diet and smoking habits, which diverts attention from the fact that blacks work in the dirtiest, most hazardous jobs, and live in the most polluted communities.

A few days after the press conference, ACS announced a "new set of policies", passing resolutions for improved regulation of such chemicals as asbestos and benzene, and for cleanup of toxic waste sites. However, there has been no evidence of any real change of heart in the ACS, since then.

The lifestyle academics

The lifestyle academics are a group of conservative scientists including Doll, Warden and Director of the Industry financed Green College, Oxford,[13] his protegé Peto, a statistician also from Oxford, and more recently Ames, a California geneticist. The puristic pretensions of the lifestylers for critical objectivity are only exceeded by their apparent indifference to or rejection of a steadily accumulating body of information on permeation of the environment and workplace with industrial carcinogens, and the impact of such involuntary exposures on human cancer. Consciously or subconsciously, these academics have become the mouthpiece for industry interests, urging regulatory inaction and public complacency. Among the more noteworthy contributions of these academics is a series of publications claiming that smoking and fatty diet each is responsible for 30–40% of all cancers, that sunlight, drugs and personal susceptibility account for another 10%, leaving only a few percent unaccounted for which, just for want of any other better reason, was then ascribed to occupation. According to the lifestylers, this then proves that occupation is an unimportant cause of cancer, which really does not warrant much regulatory concern. Apart from circularly referencing each other as authority for these wild guesses, the lifestylers have never attempted to develop any estimates of how many workers are exposed to defined levels of specific carcinogens. Without such estimates there is no way of attemption to determine just how much cancer is due to occupation.

The lifestyle theory was further advocated in a 1981 report dealing with causes of cancer in the USA by Doll and Peto where they denied evidence of increasing cancer rates other than for lung cancer, which was largely ascribed to tobacco without adequate consideration of the importance of carcinogenic community and occupational exposures.[14] To reach their misleading conclusions on static cancer rates, Doll and Peto excluded from analysis people over the age of 65 and blacks, those groups with the highest and increasing cancer mortality rates. Not content with such manipulation, they claimed that occupation was only responsible for some 4% of all cancers, without apparent consideration of a wide range of recent studies dealing with the carcinogenic effects of such exposures.[15] This wild 4% guess was matched by "guesstimates" that diet was determinant in some 35% of all cancers. To trivialize the significance of animal carcinogenicity data on industrial chemicals, Doll and Peto minimized the predictive value of these tests, while emphasizing epidemiological data as the basis of regulation.

Doll is prompt to side with industry in downplaying evidence on carcinogenicity of industrial chemicals. Illustratively, he recently lent enthusiastic support to the Australian Agent Orange Royal Commission in their dismissal of the experimental and epidemiological carcinogenicity data on the herbicides 2,4-D and 2,4,5-T.[16]

Ames is a geneticist who, in the 1970s, developed bacterial assays for mutagenicity which he advocated as short-term tests for carcinogens. He then published a series of articles warning of increasing cancer rates and of the essential need for tough regulation of industrial carcinogens, such as the fire retardant Tris and the fumigant ethylene dibromide. By the 1980s, however, Ames did an unexplained 180 degree switch, now claiming just the opposite, that overall cancer rates are not increasing, that industrial carcinogens are unimportant causes of cancer which do not need regulating, and that the real causes of cancer are natural dietary carcinogens, largely because mutagens can be found in a variety of foods.[17]

WHAT TO DO ABOUT IT

The cancer epidemic poses the nation with a grave and growing crisis of enormous cost to health, life and the economy. A 1979 book on the politics of cancer (by the author of this position paper) concluded with the following specific recommendations designed to reduce the toll of preventable cancer.

Cancer must be regarded as an essentially preventable disease.

The hidden political and economic factors which have blocked and continue to block attempts to prevent cancer must be recognized.

The ineffective past track record of government in cancer prevention must be recognized.

The critical roles in cancer prevention that public interest groups and informed labor leadership have exercised must be recognized and their further efforts fully encouraged and supported.

Congress must resolve the major inconsistencies in a wide range of legislation on environmental and occupational carcinogens.

Substantially higher federal priorities for the prevention of cancer must be developed.

Policies of the various federal agencies with responsibilities in cancer—prevention must be effectively integrated and coordinated.

Top business management must recognize the essential similarities between their long-term interest and goals and those of society. Prevention of occupational cancer and cancer in the community-at-large is of primary importance to both.

The American Cancer Society must be influenced to balance its preoccupation with treatment with activist programs designed to prevent cancer.

The medical and scientific community must accept a higher degree of responsibility and involvement in the prevention of cancer by actions on both the professional and political levels.

Medical schools and schools of public health must be persuaded to massively reorient their educational and training programs from the diagnosis and treatment of disease and cancer to prevention.

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[12] With the noted exceptions, the IARC monographs are unique and well systematized compendia of information on chronic toxicity, carcinogenicity and use data of a wide range of industrial and other chemicals.

[13] According to a founding fellow, Hermann, Green College was established in 1978 as a 'special point of entry for industrial interests wishing to collaborate with university departments in research—."

[14] This study was sponsored by the Office of Technology Assessment, whose contract officer Gough was apparently unable to find any U.S. experts with knowledge of cancer in the U.S., and so selected British lifestyle advocates for the project. (Gough is also subsequently on record in a book on Agent Orange as dismissing evidence on hazards of dioxin, including rejection of its carcinogenicity based on extensive animal data. Gough recently left OTA for a position in a chemical industry consulting firm.) Apparently responsive to criticisms of a draft report, The Office of Technology Assessment decided against its publication, which instead was independently published.

[15] Even if only 4% of cancers in the general population are occupational in origin, this implies that occupation is responsible for some 20% of all cancers in exposed workers.

[16] The 2,4,5-T component of Agent Orange was contaminated with high concentrations of 2,3,7,8-tetrachlorodibenzodioxin which, according to the Carcinogen Assesament Group of EPA, is the most potent carcinogen it has ever evaluated, some 7-fold orders of magnitude greater than the potent carcinogen vinyl chloride.

[17] Ames fails to extend his logic by claiming that faeces are carcinogenic, although they are a rich source of bacterial mutagens! Moreover, assuming that Ames' exclusionary emphasis on dietary carcinogens has scientific validity, the critical issue is not what carcinogens are "natural" and what are industrial (asbestos is an example of a carcinogen belonging to both categories), but what exposures are preventable or at least reducible.

Chemicals in consumer products and in the workplace must be clearly and simply identified and labeled.

Additional new approaches must be developed for obtaining and for retaining honest and scientifically reliable data on the carcinogenicity and toxicity of new chemicals, besides of untested or poorly tested chemicals already in commerce; such data must be made accessible to public scrutiny. Maximum legal penalties should be directed against all those responsible, directly and indirectly, for distortion or manipulation of toxicological and epidemiological data on the basis of which decisions on human safety and risk are based.

Apart from actions on a political level, we all have limited personal options. To some extent, it may be possible to reduce our own chances of developing cancer by making informed changes in lifestyle, use of consumer products, and work.

The major determinants of preventable cancer are political and economic, rather than scientific, and as such must be addressed in the open political arena. Cancer prevention must be made, at least, to rank with inflation on the next political ticket of your local and state representative, congressman, and President.

A decade later, these goals still stand as valid, but none have been achieved while cancer rates have steadily risen. To prevent similar conclusions a decade from now, the cancer prevention rhetoric must be translated into reality.

To compete with well financed propaganda of industry, tacitly supported by the cancer establishment and life style academics, an educational offensive must be mounted to inform the public and develop grass roots pressures for a cancer prevention campaign. The cutting edge for such campaigns can be provided by the major public interest organizations, including the Natural Resources Defense Council, Sierra Club, Environmental Defense Fund, Health Research Group of Public Citizens, Environmental Action, Consumer Federation of America, National Campaign Against Misuse of Pesticides, the National Campaign Against Toxic Hazards, Greenpeace, the Rachel Carson Council, and the Center for Science in the Public Interest.[18] Equally critical will be involvement of the Industrial Union Department, AFL/CIO, and key unions, such as the United Steel Workers of America, United Rubber Workers, Linoleum and Plastic Workers of America, International Association of Machinists, Oil Chemical and Atomic Workers, Amalgamated Clothing and Textile Workers, and the United Auto Workers.[19] Many of these organizations have well informed professional staff, and some have played major roles in whatever limited legislative and regulatory successes have been achieved over the last two decades.

Active support at the local level is being provided by activist citizen and labor groups that have formed in response to community or regional concerns such as hazardous waste dumps, contaminated drinking water or lawn care chemicals; the motto of such groups is "Think globally, act locally". Further support can be provided by a small network of independent and government scientists, whose thinning ranks, however, have been recently boosted by the welcome involvement of professional organizations such as the American Public Health Association and the American Lung Association.

A potential source of cancer prevention funding is the multi-million dollar budget of the American Cancer Society (ACS) raised by voluntary public contributions. An economic boycott of the ACS is now well overdue. Funding inappropriately used by the Society should be diverted to public interest organizations and labor, who are more likely to achieve the goal of winning the war against cancer. Other potential funding sources include certification to participate by designation in the United Way and Combined Federal Campaign.

Public interest and labor organizations should develop coalitions with initially limited objectives, focused around specific areas of cancer prevention of local concern. These could be subsequently expanded into wider rainbow coalitions with more comprehensive goals. The 100th Congress, revitalized by the defeat of the Reagan revolution and by a democratic renaissance, is now more likely to be receptive to such initiatives. This receptivity should be directed into increasing priorities for governmental concerns on cancer prevention, besides restoring the fragmented regulatory apparatus of government. It is also likely that key Congressmen could be galvanized into making cancer prevention one of their major political priorities, and that presidential candidates could be interested in the potential grass roots appeal of a cancer prevention ticket.

Equally important are initiatives at the state level, whose recent track record offers encouraging precedents. These include the banning of chlordane and heptachlor for termite treatment by Massachusetts in 1985 and New York in 1986, largely at the impetus of a citizen group, People Against Chlordane (PAC), passage of a $1.5 billion hazardous waste cleanup bond by New York, the Environmental Quality Bond Act of 1986, and passage of Proposition 65, the Safe Drinking Water and Toxic Enforcement Act of 1986, by California. Proposition 65, masterminded by the Sierra Club and Environmental Defense Fund and supported by a rainbow coalition of California public interest citizen and labor groups, is a sophisticated referendum which imposes tough financial penalties on industries knowingly discharging carcinogens into the drinking water supplies, and which mandates full public disclosure of such discharges by industry and state officials. A vocal opponent of Proposition 65 was Ames, who failed to impress the California public with his lifestyle advocacy and his trivializing the significance of carcinogens in drinking water. Potential opposition by the major petrochemical industry was anticipated and muted by the earmarking of some 50% of revenues from fines for the state superfund budget. However, Governor Duekmejian, responsive to special interest lobbying, has recently neutralized the scope of the new legislation by restricting its scope only to epidemiologically confirmed carcinogens. This restriction is now under legal challenge. Irrespective of the outcome of this challenge, Proposition 65 has excited national interest and is being used as a model for similar regional initiatives, such as the 1987 Safe Drinking Water Act of New York which is currently being drafted.

Among early Congressional priorities should be enactment of comprehensive white collar crime legislation. This would impose tough sanctions on individual executives, managers and professionals of industries found guilty of willful "non-disclosure" of information on hazards to workers, local communities and the nation. White collar crime legislation should also be extended to U.S. and multinational corporations which export carcinogenic products or processes which have been banned or regulated in the U.S. to "lesser developed countries", especially in the absence of full disclosure of hazards directed to ultimate users and consumers. Attention should also be directed to developing comprehensive new "cradle-to-the-grave" and material balance legislative approaches to the regulation of toxic and carcinogenic chemicals. Such legislation can be designed to complement regulation by the judicious application of marketplace pressures, in the form of financial incentives and disincentives designed to wean industry from unsafe practices, and to insure that responsible industry is not penalized and subject to unfair competition. At present, other than the prospect of toxic tort litigation, there are virtually no incentives for industry to develop safer new products and processes. Legislation is needed to develop federal R & D funding to promote such benign technologies and also to ensure that they are closely coordinated with environmental, energy and resource policies.

A critical legislative priority is amendment of the National Cancer Act to give the highest possible priority to cancer prevention, to redress the historical inbalance existing in the NCI between cancer prevention and research, diagnosis, treatment and the basic sciences, and also to insulate the NCI from direct Presidential influence. In addition to replacing NCI's director DeVita who, in spite of his contrary protestations, has been indifferent if not hostile to cancer prevention efforts and who has played a major role in perpetrating the myth that we are winning the war against cancer, senior NCI staff should be restructured and boosted by a critical mass of professionals competent in environmental and occupational cancer and committed to cancer prevention. The National Cancer Advisory Board should be reconstituted with a balanced mix of independent cancer prevention professionals, representatives of public interest and labor organizations and concerned citizens, and should be subject to close Congressional oversight. Such oversight should insure that the institutional resources are largely directed to cancer prevention, that grants and contracts reflect this priority and that NCI staff play a key role in providing the supporting scientific basis for legislative and regulatory cancer prevention efforts at the national and state levels.

Cancer is essentially a preventable disease. Given high national priority, this goal will be acheived.

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[18] Support for the EDF should be qualified pending clarification of its recent ultra-conservative and poorly informed positions on public health hazards from environment pollutants.

[19] Left wing liberal organizations and progressive labor, through effective research, writing, direct mail and public advertising, are now challenging the ability of conservative business to formulate the national agenda and shape the debate on basic social issues, such as worker rights, taxation and environmental concerns, and on foreign policy. Such organizations include the Center for National Policy, Citizens for Tax Justice, The Democracy Project headed by Mark Green, The Economic Policy Institute headed by Jeff Faux, and the Council for Economic Priorities.

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THE 50TH WEDDING ANNIVERSARY OF JOSEPH AND HELEN MEEGAN

HON. WILLIAM O. LIPINSKI

OF ILLINOIS

IN THE HOUSE OF REPRESENTATIVES

Wednesday, September 9, 1987

Mr. LIPINSKI. Mr. Speaker, it is my pleasure to bring to the attention of this body an exemplary couple from my district, Joseph and Helen Meegan. On the occasion of their 50th wedding anniversary, they have a rich and fulfilling life of service and commitment to each other and to the community to look back upon.

Mr. Meegan has been an active member of the Chicago community since he cofounded the Back of the Yards Neighborhood Council, America's oldest community organization, in 1939. In the years since, he has organized and contributed to various recreation, housing, education, and community programs and helped to pioneer the National/State School Lunch and Milk Program when it began in 1943. He has received innumerable awards, commendations, and other recognition from

APPENDIX 3

ARE WE REALLY WINNING THE WAR AGAINST CANCER

HON. JOHN CONYERS, JR.

OF MICHIGAN

IN THE HOUSE OF REPRESENTATIVES

Thursday, April 2, 1992

Mr. CONYERS. Mr. Speaker, without a doubt, one of the greatest challenges we face as a Nation is the scourage of cancer. Each year in America, one in three people will become its victim. One in four will die from it. The disease taxes the American economy of over $100 billion annually and creates incalculable human suffering.

Recently, a group of distinguished scientists issued a public statement questioning whether we were really making any progress in the war against cancer. Specifically, the statement contested claims that our ability to cure various cancers has improved in recent decades. It further questions whether both the National Cancer Institute and the American Cancer Society have adequately prioritized and resourced the all-important cancer prevention efforts.

The statement is central today as this body grapples with health care reform in general, and the devastating problem of cancer in particular. It follows, along with a Washington Post op-ed article on the same subject:

LOSING THE WAR AGAINST CANCER: NEED FOR PUBLIC POLICY REFORMS

Cancer now strikes one in three and kills one in four Americans, with over 500,000 deaths last year. Over the last decade, some 5 million Americans died of cancer and there is growing evidence that a substantial proportion of these deaths was avoidable.

We express grave concerns over the failure of the "war against cancer" since its inauguration by President Nixon and Congress on December 23, 1971. This failure is evidenced by the escalating incidence of cancer to epidemic proportions over recent decades. Paralleling and further compounding this failure is the absence of any significant improvement in the treatment and cure of the majority of all cancers. Notable exceptions are the successes with some relatively rare cancers, particularly those in children.

A recent report by the American Hospital Association predicts that cancer will become the leading cause of death by the year 2000 and the "dominant specialty" of American medicine. The costs in terms of suffering and death and the inflationary impact of cancer, now estimated at $110 billion annually (nearly 2% of the GNP), is massive. These costs are major factors in the current health care crisis, with Per-case Medicare payments exceeding those of any other disease.

We express further concerns that the generously funded cancer establishment, the National Cancer Institute (NCI), the American Cancer Society (ACS) and some twenty comprehensive cancer centers, have misled and confused the public and Congress by repeated claims that we are winning the war against cancer. In fact, the cancer establishment has continually minimized the evidence for increasing cancer rates which it has largely attributed to smoking and dietary fat, while discounting or ignoring the casual role of avoidable exposures to industrial carcinogens in the air, food, water, and the workplace.

Furthermore, the cancer establishment and major pharmaceutical companies have repeatedly made extravagant and unfounded claims for dramatic advances in the treatment and "cure" of cancer. Such claims are generally based on an initial reduction in tumor size ("tumor response") rather than on prolongation of survival, let alone on the quality of life which is often devastated by highly toxic treatments.

We propose the following reforms, not as a specific blueprint, but as general guidelines for redefining the mission and priorities of the NCI:

1. The NCI must give cancer cause and prevention at least equal emphasis, in terms of budgetary and personnel resources, as its other programs including diagnosis, treatment and basic research; NCI's current annual budget is 1.8 billion. This major shift in direction should be initiated immediately and completed within the next few years. This shift will also require careful monitoring and oversight to prevent misleading retention of old unrelated programs under new guises of cancer cause and prevention.

2. A high priority for the cancer prevention should be a large scale and ongoing national campaign to inform and educate the media and the public, besides Congress, the administration and the industry, that much cancer is avoidable and due to past exposures to chemical and physical carcinogens in air, water, food and the workplace, as well as to lifestyle factors particularly smoking. It should, however, be noted that a wide range of occupational exposures and urban air pollution have been incriminated as causes of lung cancer, besides smoking. Accordingly, the educational campaign should stress the critical importance of identifying and preventing carcinogenic exposures and reducing them to the very lowest levels attainable within the earliest practically possible time.

3. The NCI should develop systematic programs for the qualitative and quantitative characterization of carcinogens in air, water, food and the workplace, with particular emphasis on those that are avoidable. Such information should be made available to the general public, and particularly to sub-populations at high risk, by an explicit and ongoing "right to know" educational campaign, such as the specific labelling of food and consumer products with the identity and levels of a carcinogenic contaminants. While taking a lead in this program, the NCI should work cooperatively with federal and state regulatory and health agencies and authorities, industry, public health and other professional societies, labor, and community-based citizen groups.

4. The NCI should cooperate with the National Institute of Environmental Health Sciences (NIEHS), and other NIH institutes, in investigating and publicizing other chronic toxic effects induced by carcinogens, including reproductive, neurological, haematological and immunological diseases, besides cancer.

5. The NCI should cooperate with the National Institutes for Occupational Safety and Health, and other agencies to develop large scale programs for monitoring, surveillance and warning of occupational, ethnic, and other sub-population groups at high risk of cancer due to known past exposures to chemical or physical carcinogens.

6. In close cooperation with key regulatory agencies and industry, the NCI should initiate large scale research programs to develop non-carcinogenic products and processes as alternatives to those currently based on chemical and physical carcinogens. This program should also include research on the development of economic incentives for the reduction or phase-out of the use of industrial carcinogens, coupled with economic disincentives for their continued use, especially when appropriate non-carcinogenic alternatives are available.

7. The NCI should provide scientific expertise to Congress, federal and state regulatory and health agencies and authorities, and industry on the fundamental scientific principles of carcinogenesis including: the validity of extrapolation to humans of data from valid animal carcinogenicity tests; the invalidity of using insensitive or otherwise questionable epidemiological data to negate the significance of valid animal carcinogenicity tests; and the scientific invalidity of efforts to set safe levels or thresholds for exposure to chemical and physical carcinogens. The NCI should stress that the key to cancer prevention is reducing or avoiding exposure to carcinogens, rather than accepting and attempting to "manage" such risk. Current administration policies are, however, based on questionable mathematical procedures of quantitative risk assessment applied to exposures to individual carcinogens, while concomitant exposures to other carcinogens in air, water, food and the workplace are ignored or discounted.

8. The NCI should provide Congress and regulatory agencies with scientific expertise necessary to the development of legislation and regulation of carcinogens. Illustrative of such need is the administration's revocation in 1988 of the 1958 Delaney amendment to the Federal Food Drug and Cosmetic Act, banning the deliberate addition to foods of any level of carcinogen. This critical law was revoked in spite of the overwhelming endorsement of its scientific validity by a succession of expert committees over the past three decades. Neither the NCI, nor others in the cancer establishment, provided any scientific evidence challenging the validity of this revocation, including its likely impact on future cancer rates.

9. The limited programs on routine carcinogen testing, now under the authority of the National Toxicology Program (NTP), should be expanded and expedited with the more active and direct involvement of the NCI. (On a cautionary note, it should be emphasized that this program, which is clearly the direct responsibility of the NCI, was transferred to the NTP in 1978 because of mismanagement and disinterest of the NCI.) Underutilized federal resources, particularly national laboratories, should be involved in carcinogenicity testing programs. The cost of carcinogenicity testing of profitable, and potentially profitable, chemicals should be borne by the industries concerned, and not by NTP and the NCI and ultimately the taxpayer.

10. The NCI should undertake large-scale intramural and extramural research programs to characterize known carcinogenic exposures, both industrial and lifestyle, in terms of their estimated impact on cancer, and the practical feasibility of their avoidability or elimination within defined early periods.

11. The NCI should substantially expand its intramural and extramural programs on epidemiology research and develop large-scale programs on sensitive human monitoring techniques, including genetic and quantitative analysis of body burdens of carcinogens, and focus them specifically on cancer cause and prevention. The NCI should also take a key role in the design, conduct and interpretation of epidemiological investigations of cancer by federal and state regulatory and health agencies and authorities.

12. The NCI should develop large-scale training programs for young scientists in all areas relating to cancer cause and prevention.

13. Continued funding by the NCI of its comprehensive cancer centers should be made contingent on their developing strong community outreach programs in cancer cause and prevention, as opposed to their present and almost exclusive preoccupation with diagnosis and treatment. Centers

should also establish tumor registries focused on identifying environmental and occupational carcinogens, and on the surveillance of occupational and other populations at high risk of cancer.

14 With Congressional oversight and with advice from the NIH Office of Scientific Integrity, the NCI should take early action to disclose information on any interlocking financial interests between its Panel, Advisory Board, advisory committees and others in the cancer establishment, and major pharmaceutical companies involved in cancer drugs and therapy, and other industries. The NCI should also take the necessary precautions to prevent any such future conflicts.

15. The NCI should be enjoined from making or endorsing claims for new "cancer cures" unless these are clearly validated by data on reduced mortality rates and unless they conform to standard FDA regulations on claims for therapeutic efficacy.

16 The NCI should be removed from direct Presidential authority, and reintegrated within NIH, and thus made directly responsive to the scientific community at large and the advice and consent of Congress. Currently, the President appoints the Director of the NCI, who reports directly to the President, the twenty-three member executive National Cancer Advisory board (NCAB), and three member National Cancer Advisory Panel (NCAP) which controls the policies and priorities of NCI. The NCAP should be replaced by an executive committee recruited from advisory committees conforming to standard requirements of the Federal Advisory Committee Act for openness and balanced representation. Half of all appointees to NCI advisory committees should be recruited from scientists with credentials and record of active involvement in cancer cause and prevention. Appointments should also be granted to representatives of citizens', ethnic and women's groups concerned with cancer prevention.

There is no conceivable likelihood that such reforms will be implemented without legislative action. The National Cancer Act should be amended explicitly to re-orient the mission and priorities of the NCI to cancer cause and prevention. Compliance of the NCI should then be assured by detailed and ongoing Congressional oversight and, most critically, by House and Senate Appropriation committees. However, only strong support by the independent scientific and public health communities, together with concerned grassroots citizen groups, will convince Congress and Presidential candidates of the critical and immediate need for such drastic action.

Samuel S. Epstein, M.D., Prof. Occupational and Environmental Medicine, School of Public Health, Univ. of Illinois.

Eula Bingham, Ph D., Professor of Environmental Health, Univ. of Cincinnati Medical Center, Ohio. (Former Assistant Secretary of Labor, OSHA).

David Rall, M.D., Ph.D., (Former Assistant Surgeon General USPHS and Director NIEHS), Washington, DC.

Irwin D. Bross, Ph.D., Pres. Biomedical Metatechnology, Buffalo, (Former Director Biostatistics, Roswell Park Memorial Institute).

This statement has also been endorsed by the signatories listed below.

Jerrold L. Abraham, M.D., Dept. of Pathology, College of Medicine, SUNY, Syrscuse.

Dean Abrahamson, M.D., Ph.D., Professor of Public Affairs, University of Minnesota.

Nicholas A. Ashford, Ph.D., J.D., Professor of Technology and Policy, MIT.

Dr. Louis S. Beliczky, United Rubber, Cork, Linoleum and Plastic Workers of America, Ohio.

Rosalie Bertell, Ph.D., International Institute of Concern for Public Health, Toronto.

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Walter Burnstein, D.O., President Food & Water, New York.

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Joseph H. Skom, M.D., Professor of Clinical Medicine, Northwestern Univ. Medical School, Chicago.

Noel Sommer, Ph.D., Professor of Env. Science, Univ. of California, Davis.

Theodore D. Sterling, Ph.D., Professor, School of Computing Science, Simon Fraser Univ., Burnaby, Canada.

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Joel Swartz, Ph.D., Consultant in Epidemiology, Emeryville, CA.

David Teitelbaum, M.D., Professor of Preventive Medicine, University of Colorado, Denver.

Vijayalaxmi, Ph.D., Research Geneticist, Research Triangle Park, NC.

George Wald, Ph.D., Nobel Laureate, Harvard University.

Bailus Walker, Ph.D., Dean, College of Public Health, Univ. of Oklahoma, Oklahoma City. Past Commissioner of Health, Commonwealth of Massachusetts.

David H. Wegman, M.D., Professor of Work Environment, Univ. of Lowell, MA.

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Arthur C. Zahalsky, Professor of Immunology, Southern Illinois Univ., Edwardsville.

Grace Ziem, M.D., Dr. P.H., Consultant in Occupational Medicine, Baltimore.

Emanuel Farber, M.D., Chairman Dept. of Pathology, University of Toronto.

D.J.R. Sarma, M.D., Dept. of Pathology, University of Toronto.

Additional signatures received after February 3:

Arnold Schecter, M.D., Professor of Preventive Medicine, SUNY Health Science Center-Syracuse, Binghamton.

Charles F. Wurster, M.D., Professor Environmental Toxicology, Marine Sciences Research Center SUNY, Stony Brook, NY.

[From the Washington Post, March 10, 1992]

THE CANCER ESTABLISHMENT

(By Samuel S. Epstein)

"The Cancer War and Its Critics" [editorial, Feb. 16] is a welcome expression of the overdue debate on federal cancer policies. However, the editorial misattributes criticisms of the cancer establishment, the National Cancer Institute (NCI) and American Cancer Society (ACS), exclusively to me—as well as seriously misrepresenting such criticisms.

These criticisms were based on a statement released on Feb. 4 by 65 prominent authorities in cancer research, public health and preventive medicine, including former senior government scientists.

We expressed grave concerns about the failure of the war against cancer, evidenced over the past four decades by escalating cancer rates (now striking one in three and killing one in four), paralleled by absence of significant improvement in treatment except for relatively uncommon cancers. We expressed further concern that the lavishly funded establishment has "misled and confused the public and Congress by repeated claims that we are winning the war against cancer."

As recently as 1986, the NCI promised that annual cancer mortality rates would be halved by the year 2000. The establishment now belatedly admits that cancer rates are increasing sharply. However, with the enthusiastic support of the chemical industry, these are ascribed exclusively to smoking, dietary fat itself (ignoring the tenuous evidence relating this to colon, breast and other cancers) and "mysterious" causes. Meanwhile, it discounts substantial evidence incriminating a wide range of chemical and radioactive carcinogens permeating the environment, air, water, food and the workplace. Examples include occupational carcinogens causing lung cancer in nonsmoking workers; parental exposure to occupational carcinogens (implicated in more than 20 studies as causes of childhood cancer, which increased by 28 percent between 1950 and 1987) and carcinogenic pesticides in food, which are estimated to cause tens of thousands of excess cancers annually.

Non-mysterious causes of breast cancer, which the establishment ignores let alone investigates, include carcinogenic contaminants in dietary fat, particularly pesticides, PCBs and estrogens (with extensive and unregulated use as growth-promoting animal feed additives.)

Mammography, claimed as a diagnostic triumph, is an important ad ominous cause. The high sensitivity of the breast, especially in younger women, to radiation-induced cancer was known by 1970. Nevertheless, the establishment then screened some 300,000 woman with X-ray dosages so high as to increase breast cancer risk by up to 20 percent in women aged 40 to 50 who were mammogramed annually. Women were given no warning whatever, how many subsequently developed breast cancer remains uninvestigated.

Mammography risks persist with lower X-ray doses at modern centers. This is evidenced by excess breast cancer mortality in younger women noted in a Canadian study, besides four other published studies, reported in a June 1991 editorial of The Lancet. Strangely, the NCI and ACS castigate my reference to this public information as "unethical and invalid." Moreover, there is no known benefit from screening of younger, as opposed to post-menopausal, women—a warning endorsed by the American College of Physicians and Canadian Breast Cancer Task Force. Additionally, the establishment ignores safe and effective alternatives to mammography, particularly transillumination with infrared scanning.

While explaining away soaring cancer rates, the establishment, abetted by cheerleading science journalists, grossly exaggerates treatment successes. Periodic announcements of dramatic advances are based on initial reduction in tumor size rather than on prolonger survival. For most cancers, survival has not changed for decades. Contrary claims are based on rubber numbers.

Furthermore, the establishment is financially interlocked with giant pharmaceutical companies (grossing $1 billion annually in cancer drug sales), with inherent conflicts of interest.

The establishment devotes minimal resources to research and education on cancer cause and prevention—only 5 percent of the $1.9 billion NCI budget. Furthermore, the establishment provides no scientific support for legislation and regulation to reduce available exposures to industrial carcinogens.

As emphasized by critics of the cancer establishment, drastic reforms are needed.

CUTTING CONGRESS DOWN TO SIZE

HON. OLYMPIA J. SNOWE

OF MAINE

IN THE HOUSE OF REPRESENTATIVES

Thursday, April 2, 1992

Ms. SNOWE. Mr. Speaker, today I am introducing legislation to cap the size of committee membership at 25 and to limit each Member to service on 1 standing committee.

Our committee process is the congressional equivalent of the Pentagon's $600 toilet seat. It is too costly and it is too inefficient. Committees run the gamut of size from 12 to 59, with 13 of the 21 standing committees having 40 or more members. Big committees mean more staff, more subcommittees—there are 129 currently—and more roadblocks to moving legislation through the process. The House committee process proves that bigger isn't always better.

By limiting committees to 25 members and limiting each Member to 1 committee, we will return the focus of our work to the crafting of responsible legislation. Streamlining the system will allow each Member to take more of a hands-on approach to the legislation moving through their committee. With more input and more attention placed on these bills, we might improve our track record with the public and administration by producing better bills.

Limiting committee size and membership is a congressional reform whose time has come.

TRIBUTE TO ST. CLAIR COUNTY LIBRARY

HON. DAVID E. BONIOR

OF MICHIGAN

IN THE HOUSE OF REPRESENTATIVES

Thursday, April 2, 1992

Mr. BONIOR. Mr. Speaker, it is a great pleasure for me to join others in Michigan's 12th Congressional District in celebrating National Library Week. At this most appropriate time, I would like to extend a special congratulations to the St. Clair County Library on their 75th anniversary.

Located in Port Huron, the St. Clair County Library has grown with its community. In the first 9 months of operation in 1917, 547 library cards were issued on which 3,358 books were borrowed. In 1990, over 44,000 library cards were furnished and more than 620,000 volumes borrowed.

By providing services to the blind and physically handicapped the St. Clair County Library has taken important steps to ensure their facilities are available to all our residents.

Our Nation's libraries provide the tools and resources to assist in enhancing our knowledge. They are a crucial link to an increasingly competitive job market and world economy. And they bring great joy to readers of all ages.

Mr. Speaker, I am proud that St. Clair County Library is located in my congressional district and ask that my colleagues join me in recognizing this fine institution and all others for National Library Week.

SOUTH FLORIDA CELEBRATES GREEK INDEPENDENCE DAY

HON. ILEANA ROS-LEHTINEN

OF FLORIDA

IN THE HOUSE OF REPRESENTATIVES

Thursday, April 2, 1992

Ms. ROS-LEHTINEN. Mr. Speaker, on Saturday, March 28, south Florida's Greek-American community celebrated Greek Independence Day with a special celebration at the Intercontinental Hotel in Miami. The celebration of the 171st anniversary of modern Greece's independence was organized by the Committee of Greek Independence Day in southeast Florida which was chaired by Dr. George Palatianos. The event was in accord with the Presidential proclamation of March 25 as Greek Independence Day—a day of celebration of Greek and American democracy.

In this year's celebration, the 2,500 years of Greek democracy from ancient to modern times was reviewed with an inspirational speech by Dr. David F. Graf, professor of history at the University of Miami. Dr. Palatianos delivered a speech emphasizing the determination and self-sacrifice of the Greek freedom fighters of 1821 throughout Greece. He also stressed the positive contribution of the United States toward the final victory.

Dr. Basil S. Yanakakis, a prominent member of the organizing committee, presented Mr. Alec Courtelis with a commemorative plaque in appreciation of his distinguished service to the Greek-American community in the United States. Mrs. Penny Angleton and the choir of the St. Sophia Cathedral of Miami led the participants in singing "God Bless America" at the conclusion of the official celebration.

In light of the many changes the world has witnessed during the past years and the many men and women who have worked so hard for true freedom in Romania, East Germany, Poland, Czechoslovakia, and Nicaragua, we should also remember those who so many years ago did the same for Greece.

By their revolution, this small band of Greek patriots renewed the spirit of freedom that so long ago had its earliest beginnings in ancient Greece, the cradle of democracy. The legacy of democracy which began so many years ago in Athens continues today as an inspiration to us all.

Mr. Speaker, it is an honor for me to congratulate the Greek-American community of south Florida during this celebration of the spirit of freedom and justice. I was pleased that my office presented a U.S. flag which had flown over our Nation's Capitol as part of this important event. I would like to thank Dr. George M. Palatianos and Dr. Basil S. Yanakakis, and the other members of the committee on celebration of Greek Independence Day in southeast Florida for their contribution to commemorating this important date in the history of freedom.

APPENDIX 4

American Journal of Industrial Medicine 24:109–133 (1993)

COMMENTARY

Evaluation of the National Cancer Program and Proposed Reforms

Samuel S. Epstein, MD

A statement by some 68 prominent national experts in industrial medicine, carcinogenesis, epidemiology, and public health, released at a February 4, 1992 press conference in Washington, D.C., charged that the National Cancer Institute (NCI) has confused the public by repeated claims of winning the war against cancer. In fact, age standardized incidence rates have increased sharply over recent decades, while ability to treat and cure most cancers has not materially improved. Furthermore, the NCI has minimized evidence for increasing cancer rates which are largely attributed to smoking and to diet. In so doing, NCI trivializes the importance of occupational carcinogens as non-smoking-attributable causes of lung and other cancers, and ignores the tenuous and inconsistent evidence for the causal role of diet per se and also the important role of carcinogenic dietary contaminants. Reflecting this near exclusionary blame-the-victim theory of cancer causation, with support from the American Cancer Society and industry, the NCI discounts the role of avoidable involuntary exposures to industrial carcinogens in air, water, food, the home, and the workplace. The NCI has also failed to provide scientific guidance to Congress and regulatory agencies on fundamental principles of carcinogenesis and epidemiology, and on the critical need to reduce avoidable exposures to environmental and occupational carcinogens. Contrary to NCI, analysis of their $2 billion budget reveals very limited allocations for research on primary cancer prevention, and for occupational cancer which receives only $19 million annually, 1% of NCI's total budget. Problems of professional mindsets in NCI leadership—fixation on diagnosis, treatment, and basic research (much of questionable relevance) and the neglect of cancer prevention—are exemplified by the composition of the Executive President's Cancer Panel and the National Cancer Advisory Board. Contrary to the explicit mandate of the National Cancer Act, the Board is virtually devoid of recognized authorities in occupational and environmental carcinogenesis. These problems are further compounded by institutionalized conflicts of interest reflected in the composition of past Cancer Panels, and of the current Board of Overseers of the Memorial Sloan Kettering Cancer Center, NCI's prototype comprehensive cancer center, with their closely interlocking financial interests with the cancer drug and other industries. Comprehensive reforms of NCI policies and priorities are overdue. Implementation of such reforms is, however, unlikely in the absence of further support from industrial medicine professionals, which is here solicited, besides action by Congress and concerned citizen groups.

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Key words: National Cancer Institute, National Cancer Program, primary cancer prevention

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INTRODUCTION

A statement criticizing federal cancer policies, with particular reference to the National Cancer Institute (NCI), "Losing The War Against Cancer: Need for Public Policy Reforms," was released at a February 4, 1992 press conference in Washington, D.C. [Conyers, 1992; Epstein, 1992a; Obey, 1992]. The statement was cosigned by Eula Bingham, Ph.D., former Assistant Secretary of Labor and Director of OSHA; Irwin Bross, Ph.D., former Director of Biostatistics, Roswell Park Memorial Institute; David Rall, Ph.D., former Assistant Surgeon General and Director of NIEHS; and myself. The statement was further endorsed by 64 other prominent experts in industrial medicine, carcinogenesis, epidemiology, and public health. The statement charged:

"Cancer now strikes one in three and kills one in four Americans, with over 500,000 deaths last year. Over the last decade, some 5 million Americans died of cancer and there is growing evidence that a substantial proportion of these deaths was avoidable.

"We express grave concerns over the failure of the "war against cancer" since its inauguration by President Nixon and Congress on December 23, 1971. This failure is evidenced by the escalating incidence of cancer to epidemic proportions over recent decades. Paralleling and further compounding this failure is the absence of any significant improvement in the treatment and cure of the majority of all cancers. Notable exceptions are the successes with some relatively rare cancers, particularly those in children.

"A recent report by the American Hospital Association predicts that cancer will become the leading cause of death by the year 2000 and the "dominant specialty" of American medicine. The costs in terms of suffering and death and the inflationary impact of cancer, now estimated at $100 billion annually (nearly 2% of the GNP), is massive. These costs are major factors in the current health care crisis, with per-case Medicare payments exceeding those of any other disease.

"We express further concerns that the generously funded cancer establishment, the National Cancer Institute (NCI), and the American Cancer Society (ACS) and some twenty comprehensive cancer centers, have misled and confused the public and Congress by repeated claims that we are winning the war against cancer. In fact, the cancer establishment has continually minimized the evidence for increasing cancer rates which it has largely attributed to smoking and dietary fat, while discounting or ignoring the causal role of avoidable exposures to industrial carcinogens in the air, food, water, and the workplace.

"Furthermore, the cancer establishment and major pharmaceutical companies have repeatedly made extravagant and unfounded claims for dramatic advances in the treatment and 'cure' of cancer. Such claims are generally based on an initial reduction in tumor size ('tumor response') rather than on prolongation of survival, let alone on the quality of life which is often devastated by highly toxic treatments."

Reflecting such criticisms, the statement recommended specific and drastic reforms in the priorities and policies of the NCI.

The cancer establishment, NCI and ACS, responded with a media campaign of personalized criticism. Furthermore, NCI and ACS misrepresented the February 4 statement as exclusively mine (e.g., Anonymous, 1992a; Lawrence, 1992). Reacting to my responses (e.g., Epstein, 1992b) and ensuing publicity, the NCI invited me to present an "Evaluation of the National Cancer Program" at the May 5, 1992 meeting of the National Cancer Advisory Board, at which the President's Cancer Panel and NCI scientific and administrative staff were also present. The present communication is largely based on my May 5 evaluation of NCI policies [Anonymous, 1992b; Greenberg, 1992a,b].

DISCREPANT NCI OBJECTIVES

"The National Cancer Institute launched the cancer prevention awareness program in 1984 as part of the NCI's overall effort to reduce the rate of cancer mortality to one-half of the 1980 rate (from 168/100,000 to 84/100,000) by the year 2000." [NCI, 1986].

Within a subsequent few years, however, NCI made the poorly publicized and startling admission that its objective of reducing cancer mortality was unrealistic. NCI now actually anticipates further increases, and not decreases, in cancer mortality rates, from 171/100,000 in 1984 to 175/100,000 by the year 2000! [DHHS/NCI, 1991]. This is a remarkable admission of NCI's failure to even hold the line against increasing cancer mortality rates and the nation's second leading cause of death.

INCIDENCE AND MORTALITY TRENDS IN THE GENERAL U.S. POPULATION

Cancer now strikes one in three and kills one in four, up from an incidence of one in four, and a mortality of one in five in the 1950s. Age-standardized incidence rates in the overall U.S. population have increased sharply from 1950–1988 (Table I) by 43.5%; this percentage understates the absolute increase which is masked in part by declining stomach cancer rates. Rates for some common cancers have increased more sharply, lung by 263%, prostate by 100%, and male colon and female breast by about 60%. Rates for some less common cancers have also increased more sharply; malignant melanoma, multiple myeloma, and non-Hodgkin's lymphoma by well over 100%, and testis and male kidney by about 100%. The only major declines have been for stomach and cervix cancers (Table I).

Increasing incidence rates have been accompanied by less sharply increasing mortality rates. From 1975–1984, overall age-standardized mortality rates increased by 5.5% from 162/100,000 to 171/100,000, while rates for those over 75 years increased by 9.0% from 1,212/100,000 to 1,351/100,000 [Bailar, 1987]. Americans 65 and over are now at a 10-fold higher risk of developing cancer than younger age groups [NCI, 1991a]. The discrepancy between incidence and mortality trends probably largely reflects the overdiagnosis of benign as malignant neoplasms, especially for the breast and prostate [Bailar, 1986; General Accounting Office, 1987].

Contrary to their own data, both NCI and ACS have insisted until very recently that cancer incidence and mortality rates, other than those due to tobacco, are not increasing:

"We are not certainly experiencing an overall epidemic of cancer, except for that attributable to cigarette smoking" [DeVita, 1987].

Support for such unfounded assertions, however, persists from sources still relied on by NCI as authoritative:

TABLE I. Summary Changes in Cancer Incidence, 1950–1988[a]

Primary site	All races Estimated cancer cases 1988[b]	Percent incidence changes in whites 1950–1988
Stomach	24,800	−72.9
Colon/rectum	147,000	10.6
Larynx	12,200	58.7
Lung & bronchus:	152,000	262.8
Males	100,000	222.5
Females	52,000	511.7
Melanoma of skin	27,300	303.3
Breast (females)	135,000	56.9
Cervix uteri	12,900	−77.7
Corpus uteri	34,000	−5.2
Ovary	19,000	2.9
Prostate gland	99,000	100.3
Testis	5,600	96.1
Urinary bladder	46,400	54.5
Kidney & renal pelvis	22,500	102.1
Hodgkin's disease	7,400	20.6
Non-Hodgkin's lymphoma	31,700	154.1
Leukemia	26,900	4.0
Childhood cancers	6,600	21.3
All sites excluding lung	833,000	29.1
All sites	985,000	43.5

[a] NCI, 1991; data age-adjusted to the 1970 U.S. standard population.
[b] Excluding basal and squamous skin, and all in situ, cancers.

(The increase in mortality from cancer) "can be accounted for in all industrialized countries by the spread of cigarette smoking" [Doll, 1992].

Overwhelming contrary data have been recently summarized:

"In the USA and United Kingdom, mortality rates for lung cancer . . . have actually begun to decline in men, due in large part to reductions in smoking [Davis et al., 1990; Lopez, 1990]. Moreover, despite these reductions in lung cancer, incidence and mortality for many other types of cancer increased from 1969 to 1986 in 15 industrial countries, especially in persons over age 65 [Hoel et al., 1992]. The causes of these recent increases in cancer cannot simply be explained by smoking, but appear to reflect other exposures to changing factors in the environment" [Landrigan, 1992].

Furthermore, even assuming incorrectly that all lung cancer is due to smoking (vide infra), about 75% of the increased cancer incidence since 1950 is due to sites other than the lung (Table I).

NEAR STATIC SURVIVAL RATES FOR COMMON CANCERS

Over the last two decades, NCI and ACS leadership, with support of the cancer drug industry, have made overoptimistic claims for success with the latest anticancer drugs, based sequentially on cytotoxic chemotherapy, interferons, and recent biotechnology products including tumor necrosis factor, monoclonal antibodies, and interleukins. Responding to criticisms of such claims [Epstein, 1987a], the NCI asserted:

"There is clear and striking evidence for improvements in cancer treatment, not only for the less common disease in younger age groups, but also for the common tumors that affect older age groups" [DeVita, 1987].

NCI's position is poorly supported. The overall 5-year survival rates for all cancers have not materially improved, with the notable exception of pediatric and other uncommon cancers such as testicular, even in more recent years. From 1974–1987, overall 5-year survival rates increased marginally from 49.1% to 51.1% for all ages and races, and decreased from 38.6% to 38.4% for blacks [NCI, 1991a].

NCI and ACS claims for advances in ability to treat and cure cancer are meeting increasing skepticism:

"For the majority of the cancers we examined, the actual improvements (in survival) have been small or have been overestimated by the published rates . . . NCI does not systematically alert readers of its annual statistics reviews to potential sources of bias that affect changes in survival rates . . . It is difficult to find that there has been much progress . . . (For breast cancer), there was a slight improvement . . . (which) is considerably less than reported" [General Accounting Office, 1987].

"The real survival rates (for the common cancers) have hardly changed since the sixties and seventies" [Rifkind, 1988].

Based on a recent comprehensive review of the clinical oncology literature and a questionnaire survey of over 350 oncologists and research units worldwide, a leading German biometrician [Abel, 1990] concluded:

"At least 80% of cancer deaths in Western industrial countries are due to advanced epithelial malignancies. Apart from lung cancer, particularly small-cell lung cancer, there is no direct evidence that chemotherapy prolongs survival in patients with advanced epithelial malignancies.

"The majority of publications equate the effect of chemotherapy with (tumor) response, irrespective of survival. Many oncologists take it for granted that response to therapy prolongs survival, an opinion which is based on a fallacy and which is not supported by clinical studies. To date there is no clear evidence that the treated patients, as a whole, benefit from chemotherapy as to their quality of life.

"With few exceptions, there is very little scientific basis for the application of chemotherapy in symptom-free patients with advanced epithelial malignancy. Although this is the opinion of a good number of well-known oncologists, the ongoing studies do not take this fact into account."

NCI current claims for cancer cures are now more muted [Chabner and Friedman, 1992]:

"In patients with disseminated forms of the common epithelial tumors, both complete remissions and cures continue to elude us."

PROFESSIONAL MINDSETS IN THE NCI

The key problem in the leadership of the cancer establishment is a professional mindset fixated on diagnosis, treatment, and research, coupled with relative indifference to and ignorance of cancer cause and prevention. Critically, the current 18-member National Cancer Advisory Board "almost totally lacks expertise in occupational and environmental carcinogenesis" [Landrigan, 1988]. This is clearly in violation of section 407(a)(1)(B) of the National Cancer Act, which requires that no less than five members "shall be individuals knowledgeable in environmental carcinogenesis." Responding to a recent warning of this persisting violation [Epstein, 1992c], NCI implied willingness to take remedial action. "There are at present six vacancies on the Board, a situation which offers an opportunity to recommend modifications and adjustments in these areas of expertise that are statutorily required among the membership" [NCI, 1992]. As is the case with the NCAB, the current 3-member executive President's Cancer Panel also lacks expertise in cancer prevention.

Even more critically, the composition of the executive policy-making Cancer Panel reflects the same myopic skewed mindsets of the NCAB. The Panel's three members are Chair Harold Freeman, a surgeon and oncologist; Geza Jako, a surgeon; and Nancy Brinker, founder of the Susan Komen Breast Cancer Foundation. None of these members have professional or other background and qualifications in environmental or occupational carcinogenesis, or in cancer prevention.

CONFLICTS OF INTEREST IN THE NCI

Problems of professional mindsets in NCI leadership appear further compounded by poorly recognized institutionalized conflicts of interest [Epstein, 1990]. For decades, the war on cancer has been dominated by powerful groups of interlocking professional and financial interests—with the highly profitable drug development system at its hub—and a background that helps explain why "treatment," not prevention, has been and still is the overwhelming priority, as indeed it is for most physicians. The members of the generously funded cancer establishment include: the NCI; ACS; a network of 57 National Cancer Centers including 22 Comprehensive Cancer Centers, such as the prototypical New York's Memorial Sloan-Kettering, whose annual budget exceeds $350 million; NCI and ACS contractees and grantees at leading universities; and major pharmaceutical companies. Cancer care is big business, not just science or charity, with cancer drug sales of well over $1 billion annually.

The connections between the cancer establishment and the drug development industrial complex, chemical, pharmaceutical, and biotechnology companies, include Bristol-Myers Squibb, the nation's largest chemotherapy drug producer, which also controls key positions on Sloan-Kettering's board. Bristol-Myers was recently charged by FDA with "promoting several unapproved, and unproven, uses of six cancer drugs, including the best sellers in its $850 million a year line of oncology products" [Ingersoll, 1991]. Other board members have also close affiliations with oil, steel, and various large corporations; of particular additional interest is the interlocking relationship of Sloan-Kettering's board with the media giants. Another major component of the cancer drug industry is Sandoz Pharma Ltd., a huge pharmaceutical company, which recently signed a $100 million cancer drug development deal with Boston's Dana-Farber Cancer Institute.

A more obvious conflict of interest relates to the 3-member Presidentially appointed Cancer Panel which controls NCI priorities and policies. The most longstanding past chairman of the panel was Benno C. Schmidt, an investment banker, senior drug company executive, and member of the Board of Overseers of the Memorial Sloan-Kettering comprehensive cancer center. He was followed by the late

Armand Hammer, Chairman of Occidental Petroleum, a major polluting industry and manufacturer of carcinogenic chemicals [Anonymous, 1992b]. Congress has recently warned against such conflicts of interest in the Public Health Service:

"The Secretary shall by regulation establish criteria for preventing, and for responding to the existence of, any financial interest . . . that (A) will create a bias in favor of obtaining results . . . that are consistent with financial interest; or (B) may be reasonably expected to create such a bias" [Waxman, 1991].

FAILURE OF NCI TO PROVIDE SCIENTIFIC INFORMATION ON CANCER PREVENTION TO CONGRESS AND REGULATORY AUTHORITIES

Reflecting professional mindsets and institutionalized conflicts of interest, for over two decades NCI has consistently failed to provide Congress, Federal, and other regulatory agencies with scientific information on the importance of primary cancer prevention, with specific reference to reducing avoidable exposure to environmental and occupational carcinogens, and also on fundamental principles of carcinogenesis and epidemiology. Illustrative are carcinogenic dietary contaminants, culminating in the Administration's 1988 revocation of the 1958 Delaney law; this law banned the deliberate addition to food of any level of carcinogen [Epstein and Feldman, 1989a,b]. As emphasized by the group of 68 experts: "This critical law was revoked in spite of the overwhelming endorsement of its scientific validity by a succession of expert committees over the past three decades." Such failure by NCI contrasts with its stated cancer control objectives recommending interventions with "other Federal agencies, State agencies, local government, private industry, professional organizations, voluntary organizations and the media" [NCI, 1986].

QUESTIONABLE RELEVANCE OF SOME MAJOR BASIC RESEARCH PROGRAMS IN NCI TO CANCER IN GENERAL AND TO CANCER PREVENTION IN PARTICULAR

NCI has traditionally maintained that basic research is one of its highest priorities to which major resources are allocated:

"NCI has had a long standing commitment to basic research" [Broder, 1992]. The relevance of such research to NCI's overall mission is, at best, questionable. There is little apparent evidence for its relevance to cancer prevention. The views of some of the nation's leading molecular biologists and recipients of substantial NCI funding are illuminating:

"I have no idea when we'll know enough to develop anything that's clinically applicable, and I don't know who's going to do it . . . It's not a high priority in my thinking. I'm happy to work on the model systems we're working on. (Responding to questions on the relevance of oncogene research, he replied) I think all of us would say honestly that it's the normal processes of the cell that are our real concern" [Baltimore, 1988].

"If you're giving me money, I'll talk about cures. Since you're not, I won't. Talking about cures is absolutely offensive to me. In our work, we never think about such things even for a second" [Barbacid, 1988].

"You can't do experiments to see what causes cancer. It's not an accessible problem, and it's not the sort of thing scientists can afford to do. You've got to live,

TABLE IIa. 1992 NCI Budget on Cancer Prevention (Dollars in Thousands)

			$
Total appropriation			1,951,541
Cancer prevention (Including primary prevention)			
Division of Cancer Etiology (DCE)		531,575	
Division of Cancer Prevention and Control (DCPC)		113,610	645,185
As % of total appropriations	= 30		
"Primary cancer prevention"			334,693[a]
As % of cancer prevention	= 52		
As % of total appropriations	= 17		
Occupational cancer			19,000[b]
As % of cancer prevention	= 3		
As % of total appropriations	= 1		
NIOSH Pass-through funds			500[b]
As % of 1977 allocation (adjusted for inflation)	= 10		

[a] Includes the total DCPC allocation of $113,610.

[b] Included in the "primary cancer prevention" allocation.

TABLE IIb. 1992 NCI Budget on "Primary Cancer Prevention"* (Dollars in Thousands)

	$
Grants	147,053
Contracts	45,660
Intramural research	28,370
Cancer Prevention and Control (DCPC)	113,610
TOTAL	334,693

you've got to eat, you've got to keep your postdocs happy. Everything you do can't be risky" [Varmus, 1988].

Congressional skepticism on NCI's high priority for basic research appears fully justified [Obey, 1991]:

"Research is serendipitous . . . and many of the important discoveries that enable us to fight cancer today originate at an institute other than the NCI. A number of them originated at (the National Institute of) General Medical Sciences, which devotes almost all of its budget to basic medical research, . . . (which) we starved (of funds) . . . There will be a tremendous pressure on researchers who want to get dollars for their research grants to find some way to claim that they have a cancer angle in their research . . . The fact is that from 1988 through this year, the NCI budget went up by 35%. Meanwhile. Heart-Lung-Blood went up 24%. Almost twice as many people die of those diseases as die of cancer . . . (Yet) we would be funding 48% (of competitive grants) . . . at NCI, but we will be funding only half that research at Heart-Lung-Blood."

NCI BUDGET FOR CANCER PREVENTION

Of an approximate $2 billion budget for 1992, NCI allocates about $645 million, or 30%, to "cancer prevention," of which the Division of Cancer Etiology (DCE) receives about 82% and the Division of Cancer Prevention and Control (DCPC) the remainder (Table IIa). Included in the "cancer prevention" budget is an allocation of some $335 million, 17% of the total budget, for "primary cancer prevention," defined as "those research activities designed to yield results that are directly applicable to the identification of risk and to interventions to prevent disease or the progression of detectable but asymptomatic disease" [Broder, 1992].

It should, however, be emphasized that NCI has apparently never initiated any scientific or other "interventions" in legislative, regulatory, or public arenas (by a wide range of available mechanisms) designed to prevent or reduce avoidable exposures to any carcinogens other than tobacco.

The entire budget of DCPC is included in that of "primary cancer prevention," nearly half of which is allocated to investigator initiated grants, with the remainder allocated to contracts and intramural research (Table IIb). Included is $19 million for research on occupational cancer, about 6% of the "primary prevention" budget and about 1% of the total NCI budget. Also included are pass-through funds of $500,000 to the National Institute for Occupational Safety and Health (NIOSH), only 10% of the $3 million 1977 allocation (adjusting for inflation).

Review of the 1991 line item grant and contract obligations for "primary prevention" and for in-house DCPC programs reveals predominant emphasis on smoking and nutrition. Even included are well funded and highly questionable, if not potentially hazardous chemoprevention trials in healthy people known to have been exposed to occupational carcinogens or who are otherwise at increased risk of cancer. Illustrative are the chemoprevention of breast cancer with the toxic and carcinogenic tamoxifen [Fugh-Berman and Epstein, 1992], and the proposed chemoprevention of colon cancer with the nephrotoxic nonsteroidal anti-inflammatory ibuprofen, active ingredient of Bristol-Myers Squibb's Nuprin [NCI, 1991b]. Still more questionably included are studies on secondary cancers following treatment.

With the exception of widely ranging smoking programs, only nominal funding, of $50 million at most, appears obligated for research on avoidable carcinogens in air, water, food, home, and the workplace. Furthermore, there is no evidence of any funding for interventions directed to reducing such avoidable exposures. Not surprising is the Congressional reaction:

"A number of scientists have suggested that cancer prevention receives an even smaller percentage of the budget than what NCI considers primary prevention" [Obey, 1992].

NCI leadership has confused Congress as to its claimed allocations for "cancer prevention" and also for "primary cancer prevention." Illustrative is the following statement in the 1991 Congressional report on NCI authorization and appropriations which relied on and quoted from NCI representations in its 1991 and 1992 budget estimates [Waxman, 1991]:

"NCI Director Samuel Broder has written, 'Prevention is the most cost-effective way to deal with any disease or set of diseases; cancer is not an exception. Ultimately, the real gains in reducing cancer incidence and mortality will come from prevention.' The prevention and control agenda outlined by the NCI in its proposed

FY 1992 budget is comprehensive, scientifically valid and, most important, achievable. By increasing the percentage of the budget allocated to prevention from approximately 5 percent to 10 percent over two fiscal years, the Committee believes the real gains to which Dr. Broder referred can be achieved . . . The cancer prevention and control program of NCI provides the bridge between knowledge derived from basic and clinical research programs and its application in clinical and public health settings . . . The primary focus of the Cancer Prevention Research Program 'is to develop and evaluate strategies for the prevention of cancer.' The primary goal of cancer control 'is to change personal behavior and patterns of practice to maximize the impact of cancer prevention and control regimens on cancer morbidity and mortality.' For this reason, cancer prevention and control activities hold the greatest promise of achieving the goal of significantly reducing cancer incidence and mortality by the year 2000."

Particularly noteworthy is NCI's equation of cancer prevention with "blame-the-victim" concepts of cancer causation, to the virtual exclusion of avoidable and unknowing exposures to industrial carcinogens in air, water, food, the home, and the workplace. In this, NCI receives lockstep support from the ACS and the chemical industry. Such misrepresentation is further compounded by NCI's failure to admit to Congress that it has abandoned its unrealistic objective of "significantly reducing cancer incidence and mortality by the year 2000."

It is furthermore clear that NCI has no intention of making any substantial changes in its current policies and priorities. The NCI FY 1993 "bypass" budget, which is presented directly to the President, circumventing routine NIH and DHHS channels, calls for an allocation of $2.7 billion. The bypass budget itemizes a total of $205 million for DCPC for the expansion of itemized current prevention programs, with no reference whatsoever to research and interventions relating to occupational cancer and other avoidable exposures to environmental carcinogens [Anonymous, 1992c]. The same reservations relate to the 1993 NIH reauthorization bill which earmarks $325 million for research on breast cancer, besides $75 and $72 million for research on ovarian and prostate cancers, respectively.

NCI ESTIMATES ON THE CONTRIBUTION OF LIFESTYLE AND ENVIRONMENTAL FACTORS TO CANCER MORTALITY

Current NCI estimates on the causes of cancer (Table III) are largely based on an obsolete analysis of trends in cancer mortality from 1933–1977 reported a decade ago [Doll and Peto, 1981]. However, such estimates reflect lack of recognition of the multiple causes of some, if not most, cancers. Thus, the true total sum of all "causes" should well exceed 100%. It is of further interest to note the Doll and Peto report concluded that "there is no evidence of any generalized increase (in cancer mortality) other than that due to tobacco." This conclusion, however, was reached by excluding consideration of people over the age of 65 and blacks, just those groups in which more than half of all cancer deaths have been reported, and by incorrectly ascribing lung cancer almost exclusively to smoking. It should also be emphasized that the 1981 Doll and Peto estimates are devoid of any cited quantitative scientific data, apart from tobacco for which the confounding variable of occupational exposures was ignored.

The basis of Doll and Peto's estimates is as follows: they assumed that diet

TABLE III. NCI Estimates on the Contribution of "Lifestyle and Environmental Factors" to Cancer Mortality*

	%
Diet	35
Tobacco	30
Reproductive/sexual behavior	7
Occupation	4
Alcohol	3
Geophysical factors	3
Pollution	2
Industrial products	1
Medicine and medical procedures	1
	86

*DHHS/NCI, 1991.

causes 35% (ranging up to 70%) of cancers and that smoking causes 30% and that these together with other causes, such as alcohol and sunlight, total 96%. This leaves a balance of 4%. To bring these figures neatly up to 100%, they conveniently ascribed 4% to occupational causes. They attempted to dignify this tenuous hypothesis by circular referencing of other blame-the-victim advocates, including Higginson, Armstrong, and Wynder, who in turn cited earlier publications of Doll and Peto as their authority. Doll's continuing insistence on his obsolete blame-the-victim hypothesis, which trivializes the role of environmental and occupational exposure to industrial carcinogens [Doll, 1992], is scientifically unsupported [Landrigan, 1992]. Doll's position is also consistent with his industrial interests, as illustrated by his position until recently as Warden and Director of the industry-financed Green College, Oxford. Green College was established in 1978 as a "special point of entry for industrial interests wishing to collaborate with University departments in research" [Herrmann, 1978].

NCI TRIVIALIZES OTHER CAUSES OF LUNG CANCER BESIDES SMOKING

Smoking is indisputably a leading cause of disease and death from cardiovascular disease and lung cancer, and cancers at other sites generally to a much lesser extent. However, NCI leadership has trivialized the substantial evidence for a major role of occupational and urban causes of lung cancer. This evidence includes the following:

1. The incidence of lung cancer in nonsmokers has more than doubled over recent decades [Enstrom, 1979].

2. Lung cancer rates in black men are some 40% higher and have been increasing more rapidly than in whites over the last few decades. While more black men identify themselves as current smokers, they have in fact smoked less and started smoking later in life than white men [Davis et al., 1982; U.S. DHHS, 1982; Schneiderman et al., 1990].

3. The incidence of adenocarcinoma of the lung, which is less clearly related to

TABLE IV. Smoking and Non-Smoking-Attributable Causes of Lung Cancer*

	Age-adjusted lung cancer mortality rates (1984)			
	Male		Female	
Mortality rate/100,000	White	Black	White	Black
Rate	71.8	101.0	25.2	24.1
Smoking attributed	62.5	85.5	19.4	17.3
Non-smoking-attributed	9.3	15.5	5.8	6.8
% Non-smoking-attributed	13.0	15.4	23.0	28.2

*Schneiderman et al., 1989.

smoking than are squamous and oat cell carcinomas [IARC, 1986], has increased sharply over recent decades [Wagoner et al., 1980]. The most recent data (1983–1987) for the percentage of all lung cancer due to adenocarcinomas are 26.5% and 32.4% in whites and blacks, respectively [NCI, 1991].

4. The role of occupation as a major confounding variable was ignored in nearly all of the some 30 retrospective studies associating lung cancer with smoking [Epstein and Swartz, 1984].

5. There are strong positive associations, largely independent of smoking habits, between lung cancer and occupational exposure to a wide range of carcinogenic products, such as arsenic, chrome, nickel, and BCME, and carcinogenic processes, such as copper smelting, uranium, zinc and lead mining, spray painting, and tannery work [e.g., Davis et al., 1982].

6. The high lung cancer rates in workers in casting areas of iron foundries are related to their daily inhalation of levels of polycyclic aromatic hydrocarbon carcinogens equivalent to 10–20 packs of cigarettes [Perera, 1990]; these estimates ignore the incremental role of silica.

7. On the basis of studies incriminating urban air pollution and lung cancer [e.g., Stocks, 1960], the 1970 "National Panel of Consultants on the Conquest of Cancer" concluded that "lung cancer (is) undoubtedly attributable to the air pollution in certain environments" [National Panel of Consultants, 1970]. Subsequent studies, including those on diesel exhaust, have also incriminated air pollution as a significant cause of lung cancer [NAS, 1972a, 1981; IARC, 1977; NIOSH, 1988]. Other studies have demonstrated excess lung cancer rates in communities residing near large petrochemical plants [Gottlieb et al., 1979]. Of clear relevance is evidence that U.S. industries in 1991 discharged into the environment some 3.6 billion pounds of chemicals, including a wide range of carcinogens [EPA, 1990].

8. Age-adjusted lung cancer death rates not attributable to smoking have been recently computed from published data on the proportion of active smokers, the proportion of quit smokers, and the amounts smoked [Schneiderman et al., 1989]. Non-smoking-attributable causes of lung cancer were found to range from 13% in white men to 28% in black women, and to be 67% higher in black than white men and 16% higher in black than white women (Table IV).

"These residual rates place nonsmoking attributable lung cancers among the three or four most common cancers (in terms of mortality) in the U.S." [Schneiderman et al., 1990].

Finally, it should be noted that until very recently, NCI and ACS have tried to explain away increasing cancer incidence rates by ascribing them almost exclusively to smoking [e.g., DeVita, 1987].

NCI TRIVIALIZES OCCUPATIONAL CANCER AS A MAJOR CAUSE OF CANCER MORTALITY

The NCI current estimate that occupational cancer is responsible for only 4% of total cancer mortality [DHHS/NCI, 1991] is largely based on obsolete analyses of cancer trends from 1933–1977 [Doll and Peto, 1981]. Contrary evidence includes the following:

1. Over the last few decades, a plethora of new studies have identified a wide range of additional carcinogenic products and processes inducing cancers in a wide range of organs, particularly lung, brain, bladder, kidney, and multiple myeloma [e.g., Selikoff and Hammond, 1978; Davis et al., 1982; Infante and Pohl, 1988; Maltoni and Selikoff, 1988].

2. Based on exposure data, NIOSH [1982] has estimated that approximately 11 million workers are exposed to occupational carcinogens. Surveillance of these workers by NCI and NIOSH is minimal, at best.

3. In the same year as Doll and Peto published their 4% estimate, which NCI leadership regularly cites, Peto also admitted to divergent estimates of up to an order of magnitude greater:

"Occupational factors are likely to account for . . . a 'large' percentage (e.g. 20–40%) of all U.S. cancer . . . (Even low estimates) represent large enough absolute numbers of deaths to justify both intensive research and political action . . . A mere 2.5% of all U.S. cancer deaths would represent some 10,000 deaths per year" [Peto and Schneiderman, 1981].

4. Of 37,000 total cancer deaths each year in New York State, 10% (3,700) are estimated to be due to occupational exposures [Landrigan and Markowitz, 1989]. Since the exposure patterns of the New York and national work forces were shown to be similar, the annual mortality from occupational cancer would thus be approximately 50,000, or about 10% of all cancer deaths.

5. The relative risks for cancers induced in a wide range of organs following exposures to occupational carcinogens, such as aromatic amines, benzene, and BCME, are orders of magnitude greater than those of the general population.

6. Asbestos, clearly the single most important *known* occupational carcinogen, is estimated to cause some 300,000 cancer and other deaths by the year 2030, including 60,000 mesotheliomas, that are not related to smoking [Nicholson et al., 1982]. As recently emphasized [Landrigan, 1992], such evidence negates continuing assertions by Doll, on whom NCI still heavily relies for its low 4% estimate of occupational causes of total cancer mortality, that asbestos is responsible for only "few cases of mesothelioma" [Doll, 1992].

7. Some 20 U.S. and international studies have incriminated parental exposure to occupational carcinogens as major causes of childhood cancer [O'Leary et al., 1991], whose incidence has increased by 21% since 1950.

8. Based on recent analysis of cancer mortality trends in 15 industrialized countries from 1969–1986, it was concluded that "we have identified changes in the incidence and mortality rates for cancers at other sites (than those related to smoking) . . . in the middle and older age groups throughout the industrialized world" [Hoel et al., 1992].

NCI ACCEPTS TENUOUS EVIDENCE FOR THE ROLE OF HIGH FAT DIET ITSELF AS A MAJOR "CAUSE" OF BREAST AND OTHER CANCERS

"A high intake of fat has been associated with cancer of the breast, colon, rectum, and prostate, and possibly pancreas, uterus and ovary. Dietary factors are estimated to account for approximately 35% of cancers" [DHHS/NCI, 1991].

This high fat hypothesis, however, is largely based on Doll and Peto's research [1981], and reports by other related "blame-the-victim" advocates which provide only weak and inconsistent supporting evidence. It should further be noted that Peto subsequently retracted this 35% estimate:

(Recommendations for reducing dietary fat) "should chiefly be because they *will* help avoid heart disease, rather than because they *may well* avoid cancer, . . . the evidence in this respect is less secure" [Peto, 1987].

(Quoting Peto) "We'd like to have definitive evidence (on diet and cancer), but we don't have it. There is nothing in the league with smoking, which is a big and definite risk factor" [Kolata, 1987].

Furthermore, with reference to the role of dietary fat as a major cause of breast cancer, which NCI policy makers explicitly accept, a recent review concluded:

"The results of case-control and cohort studies (e.g. Willett et al, 1987) have produced at best inconsistent results" [Henderson et al., 1991].

NCI FAILS TO RECOGNIZE PREVENTABLE CAUSES OF BREAST CANCER

Despite expenditures of over $1 billion on breast cancer over the last two decades [Marshall, 1991], "we must conclude that there has been no progress in preventing the disease" [GAO, 1991]. NCI programs on breast cancer prevention reflect questionable science, as illustrated by emphasis on high fat diet itself as the major cause. This is further compounded by apparent unfamiliarity with evidence incriminating a wide range of carcinogenic pesticides and other xenobiotic dietary contaminants. None of NCI's past heavily funded nutritional studies claiming associations between dietary fat and breast cancer, as well as colon and other cancers, have investigated or apparently even considered the confounding variable of carcinogenic contaminants. Less understandable is NCI's failure to consider investigation of the role of dietary contaminants in its proposed multimillion dollar studies on the relation of diet and breast cancer. Evidence for the role of these contaminants include the following [Epstein, 1992e]:

1. Carcinogenic pesticides, such as DDT, chlordane, and dieldrin, which concentrate in animal fats, induce breast cancer in rodents [e.g., Walker et al., 1969; National Cancer Institute, 1977]. This creates a strong presumption for a causal role of such dietary contaminants and breast cancer in women, particularly as the sites of tumor induction are generally similar in experimental animals and humans [Rall, 1988].
2. Promotion by DDT of mammary tumors induced in rodents by the potent carcinogen acetamidophenanthrene "might be considered possible contributors to the high incidence of breast cancers" [Scribner and Mottet, 1981].
3. DDT and PCBs concentrate in human breast cancer tissue itself in contrast to adjacent non-neoplastic tissue [Wasserman et al., 1976], and in breasts with cancer in contrast to those with fibrocystic disease [Falck et al., 1992].

4. Breast cancer mortality in premenopausal Israeli women declined by 30% following regulations reducing levels of DDT and other carcinogenic pesticides in dietary fat, in spite of increasing fat consumption and decreasing parity [Westin and Richter, 1990].

5. In view of the known carcinogenicity of exogenous estrogens, lifelong exposure to estrogenic contaminants in animal fat, due to their unregulated use as growth promoting feed additives, is clearly a risk factor for breast cancer. Warnings of such breast cancer risks, including that by NCI's past leading expert in endocrinology, have gone unheeded by the cancer establishment [Hertz, 1977].

6. Exogenous estrogens synergize the carcinogenicity of irradiation in the rodent breast [Segaloff and Maxfield, 1971; Shellabarger et al., 1978]. Estrogens also synergize the induction of mammary cancer in rats by polynuclear hydrocarbon carcinogens [Dao, 1962].

Apart from ignoring the role of avoidable carcinogenic dietary contaminants, NCI has also failed to investigate the carcinogenic hazards of mammography, particularly the probable relation between increasing breast cancer rates and the high dose mammograms administered without warning to some 300,000 women in the 1970s' Breast Cancer Detection and Demonstration Program (BCDDP), advocated by NCI and ACS. Based on a wide range of previously published epidemiological data, an authoritative international expert group in 1972 estimated incremental breast cancer risks of approximately 1% per rad exposure [NAS, 1972b]. Thus, a premenopausal woman given one mammogram annually, for 10 years, with a conservative estimated dose of two rads per exposure, would be at 20% excess risk. A confidential memo by a senior NCI physician in charge of the screening program [Berlin, 1973] may explain why, in spite of warnings by the NAS in 1972 and by their own key scientific staff [Bailar, 1976], women were not warned of this risk. The memo may also account for the cancer establishment's enthusiasm for the BCDDP program:

"Both the (ACS) and NCI will gain a great deal of favorable publicity because they are bringing research findings to the public and applying them. This will assist in obtaining more research funds for basic research and clinical research which is sorely needed" [Berlin, 1973].

It may be further noted that NCI has also failed to explore adequately safe alternatives to mammography, particularly transillumination with infrared light scanning [Greene et al., 1985; Lafrenière et al., 1986]. This is all the more serious in view of evidence of excess breast cancer mortality in pre-menopausal women following mammography, together with accumulating evidence of its ineffectiveness for detecting early breast cancer in younger women [e.g., Bailar, 1988], including the recent Canadian study [Anonymous, 1991].

"There is no evidence to support introduction of service mammography for women under 50, and some may argue that there should be a moratorium on all mammography for symptom-free women in this age group outside randomized control trials."

NCI still ignores carcinogenic dietary contaminants and high dose mammography in the 1970s as preventable causes of breast cancer [Epstein, 1992e]. Meanwhile, NCI designates its tamoxifen chemoprevention trial as "primary cancer prevention." In May 1992, NCI initiated this trial on 16,000 healthy women at increased risk of breast cancer, for familial and more questionable reasons, including age over 60 years [Smigel, 1992]. The tamoxifen trial is a prospective experiment in human carcinogenesis whose scientific invalidity is compounded by a misleading patent consent form, trivializing risks and exaggerating benefits [Fugh-Berman and Epstein, 1992].

Tamoxifen, a structural analog of diethylstilbesterol (DES), induces covalent DNA adducts in rodents, thus making "this drug a poor choice for the chronic preventative treatment of breast cancer" [Han and Lieber, 1992]. It is a "rip-roaring liver carcinogen" [Raloff, 1992], inducing highly malignant liver tumors in 15% of rats [Anonymous, 1992d] at doses equivalent to the daily 20 mg chemoprevention dose, and in 71% at the higher adjuvant therapy 40 mg dose [ICI, 1990; Nayfield et al., 1991]. This experimental evidence of potent carcinogenicity is confirmed by two case reports of liver cancer among 931 women receiving 40 mg tamoxifen doses in the Stockholm adjuvant therapy trials, and more strikingly by several reports of endometrial cancer, particularly in the Stockholm trial, documenting a 6.4-fold relative risk [Gusberg, 1990]. The endometrial cancer risk was, however, dismissed by Peto as "no big deal" [Raloff, 1992]. It should further be emphasized that the median follow-up for all the seven reported tamoxifen trials was only 80 months [Nayfield et al., 1991]; very few healthy women have taken the drug for more than five years [Anonymous, 1992c]. Thus, tamoxifen appears to be a much more potent human carcinogen than is currently admitted by NCI. As recently concluded: "The tamoxifen project is a travesty of science and a parody of cancer prevention" [Epstein and Rennie, 1992].

NCI TRIVIALIZES ENVIRONMENTAL POLLUTANTS AS CAUSES OF AVOIDABLE CANCER

According to NCI, "pollution" and "industrial products" are together responsible for only 3% of cancer deaths (Table III). Estimates such as these fail to reflect an extensive body of evidence. This includes the exponential production and manufacture of a wide range of synthetic organic chemicals, particularly industrial carcinogens [Epstein, 1979], from one billion pounds per annum in the 1940 dawn of the petrochemical era to over 400 billion pounds annually by the 1980s [Davis et al., 1982]. Only some 10% of these new industrial chemicals have been adequately tested for carcinogenicity [NRC, 1984]. More critically, of some 120 carcinogens identified in experimental animals over the last two decades, less than 10% have yet been subjected to epidemiological study by the NCI or by industry [Tomatis, 1988].

The role of environmental pollution as a substantial cause of increasing cancer rates is illustrated by reference to just one class of industrial chemicals, carcinogenic pesticides:

1. Some 53 carcinogenic pesticides are registered for use on major crops, such as apples, tomatoes, and potatoes, which become contaminated with detectable residues. Consumption of common foods with residues of 28 of these pesticides have been associated with some 20,000 excess annual cancer deaths [NAS, 1987]. It was further estimated that if then-current exposure levels were to continue, 6,000 preschool children will develop cancer from exposure to residues of carcinogenic pesticides in fruits and vegetables [NRDC, 1989]. EPA policies now allow residues of a single carcinogenic pesticide on a single food item at levels posing a "negligible cancer risk" of 1/100,000 excess cancers, equivalent to some 35 excess annual cancer deaths. However, based on EPA estimates, aggregate risks from consumption of

about 30 food items contaminated by residues of 30 carcinogenic pesticides would thus result in about 30,000 excess cancers each year, assuming conservatively that risks are no more than additive [Epstein and Feldman, 1989a,b]. It should be further stressed that NCI has failed to undertake epidemiological studies on the great majority of pesticides known, in some instances for decades, to induce cancer in experimental animals and which are common dietary contaminants.

On July 1, 1992, NCI announced a joint industry program, "5-A-Day Food for Better Health," to encourage consumption of produce to prevent cancer. However, NCI ignored extensive contamination of produce with detectable but unlabelled residues of carcinogenic pesticides.

2. Some 34 pesticides are commonly used for professional lawn care treatment at application rates up to 5-fold in excess of agricultural. Ten of these pesticides (29%) are known to induce cancer in rodents [NCAMP, 1991]; this evidence has been confirmed for one of these pesticides, 2,4-D, in occupational studies by NCI epidemiologists [Blair et al., 1985; Brown et al., 1990]. Recent studies have also demonstrated major excesses of lymphomas in dogs living in homes whose gardens receive regular lawn care treatment [Hayes et al., 1991]. Infants and children, like dogs, are also clearly at major excess risk from such exposures. Of relevance in this connection is the EPA's recent report that the theoretical maximum levels of some dietary pesticide residues, including carcinogens, may exceed published standards by a factor of more than 10,000 [EPA, 1992].

3. Over the last three decades, tens of millions of U.S. homes have been treated for termites by subterranean application of the slowly degradable carcinogenic pesticides chlordane and heptachlor [Epstein, 1976]. These pesticides are a complex mix of some 150 components, including undisclosed potent carcinogenic contaminants termed "inert" by the Environmental Protection Agency and industry [Epstein, 1987b]. The agricultural use of these pesticides was phased out after 1975 EPA suspension/cancellation hearings concluded that their food residues posed an "imminent hazard" of cancer [Epstein, 1976]. It was subsequently determined that routine termite treatment could result in persistent air contamination with exposure levels greater than those which EPA had determined posed an imminent cancer hazard on food, and which posed risks in the order of 300–3,000 excess annual cancer deaths. Commonplace misapplication of these pesticides resulted in higher air contaminant levels and still higher cancer risks. No epidemiological studies have ever been conducted on the millions of people living in contaminated homes in spite of repeated recommendations [NRC, 1979; NAS, 1982; USAF, 1984]. While NCI scientists agreed, in principle, to conduct an epidemiological feasibility study on people living in chlordane-contaminated homes [Hoar, 1983], this has not yet been undertaken.

REFORMING THE NCI

Obstacles

Drastic reforms of NCI policies, with its minimal priorities on "primary cancer prevention," are overdue. However, a complex of powerful constraints limit the practical feasibility of implementing such reforms, particularly in the near future. These include: direct control of the NCI, uniquely and in contrast to all other National Health Institutes, by the President who appoints NCI's Director, executive Cancer Panel, and advisory National Cancer Board; the lack of expertise in environmental and occupational carcinogenesis in NCI leadership, particularly the Cancer Panel, and also the Advisory Board in violation of Section 407 of the National Cancer Act; professional mindsets of past and present directors and senior staff who are fixated on diagnosis, treatment, and basic research; powerful support for NCI priorities by a national network of cancer clinicians, basic researchers, and academic and clinical institutions; powerful support from the ACS, whose policies closely parallel those of the NCI; poor comprehension of primary prevention which is restrictedly focused on obsolete blame-the-victim theories, and on chemoprevention; failure to recognize the relation between escalating cancer rates and avoidable exposures to carcinogens in air, water, food, the home, and the workplace; support from giant cancer drug pharmaceutical industries, with interlocking financial interests; pressures from chemical industries in support of exclusionary blame-the-victim theories of cancer causation; efforts by NCI leadership to persuade the public and Congress that we are winning the war against cancer; NCI's designation of a wide range of unrelated and marginal programs as "primary prevention" programs in order to justify exaggerated claims for primary prevention allocations; and the historic lack of effective scientific, Congressional, grassroots, and labor constituencies for primary cancer prevention.

Proposed Reforms

The group of 68 experts proposed a series of reforms, not as a specific blueprint but as general guidelines for redefining the mission and priorities of the NCI. Most critically, they recommended [Epstein, 1992a]:

"1. The NCI must give cancer cause and prevention at least equal emphasis, in terms of budgetary and personnel resources, as its other programs including diagnosis, treatment and basic research; NCI's current annual budget is $1.9 billion. This major shift in direction should be initiated immediately and completed within the next few years. This shift will also require careful monitoring and oversight to prevent misleading retention of old unrelated programs under new guises of cancer cause and prevention.

"2. A high priority for the cancer prevention program should be a large scale and ongoing national campaign to inform and educate the media and the public, besides Congress, the administration and the industry, that much cancer is avoidable and due to past exposures to chemical and physical carcinogens in air, water, food, and the workplace, as well as to lifestyle factors particularly smoking. It should, however, be noted that a wide range of occupational exposures and urban air pollution have been incriminated as causes of lung cancer, besides smoking. Accordingly, the educational campaign should stress the critical importance of identifying and preventing carcinogenic exposures and reducing them to the very lowest levels attainable within the earliest practically possible time.

"3. The NCI should develop systematic programs for the qualitative and quantitative characterization of carcinogens in air, water, food, and the workplace, with particular emphasis on those that are avoidable. Such information should be made available to the general public, and particularly to sub-populations at high risk, by an explicit and ongoing 'right to know' educational campaign, such as the specific labelling of food and consumer products with the identity and levels of all carcinogenic contaminants. While taking a lead in this program, the NCI should work cooperatively with federal and state regulatory and health agencies and authorities, industry, public health and other professional societies, labor, and community-based citizen groups.

"4. The NCI should cooperate with the National Institute of Environmental Health Sciences (NIEHS), and other NIH institutes, in investigating and publicizing other chronic toxic effects induced by carcinogens, including reproductive, neurological, haematological and immunological diseases, besides cancer.

"5. The NCI should cooperate with the National Institute for Occupational Safety and Health and other agencies to develop large scale programs for monitoring, surveillance and warning of occupational, ethnic, and other sub-population groups at high risk of cancer due to known past exposures to chemical or physical carcinogens.

"6. In close cooperation with key regulatory agencies and industry, the NCI should initiate large scale research programs to develop non-carcinogenic products and processes as alternatives to those currently based on chemical and physical carcinogens. This program should also include research on the development of economic incentives for the reduction or phase-out of the use of industrial carcinogens, coupled with economic disincentives for their continued use, especially when appropriate non-carcinogenic alternatives are available.

"7. The NCI should provide expertise to Congress, federal and state regulatory and health agencies and authorities, and industry on the fundamental scientific principles of carcinogenesis including: the validity of extrapolation to humans of data from valid animal carcinogenicity tests; the invalidity of using insensitive or otherwise questionable epidemiological data to negate the significance of valid animal carcinogenicity tests; and the scientific invalidity of efforts to set safe levels or thresholds for exposure to chemical and physical carcinogens. The NCI should stress that the key to cancer prevention is reducing or avoiding exposure to carcinogens, rather than accepting and attempting to 'manage' such risk. Current administration policies are, however, based on questionable mathematical procedures of quantitative risk assessment applied to exposures to individual carcinogens, while concomitant exposures to other carcinogens in air, water, food, and the workplace are ignored or discounted.

"8. The NCI should provide Congress and regulatory agencies with scientific expertise necessary to the development of legislation and regulation of carcinogens. Illustrative of such need is the administration's revocation in 1988 of the 1958 Delaney amendment to the Federal Food Drug and Cosmetic Act, banning the deliberate addition to foods of any level of carcinogen. This critical law was revoked in spite of the overwhelming endorsement of its scientific validity by a succession of expert committees over the past three decades. Neither the NCI, nor others in the cancer establishment, provided any scientific evidence challenging the validity of this revocation, including its likely impact on future cancer rates.

"9. The limited programs on routine carcinogenicity testing, now under the authority of the National Toxicology Program (NTP), should be expanded and expedited with the more active and direct involvement of the NCI. (On a cautionary note, it should be emphasized that this program, which is clearly the direct responsibility of the NCI, was transferred to the NTP in 1978 because of mismanagement and disinterest of the NCI). Under-utilized federal resources, particularly national laboratories, should be involved in carcinogenicity testing programs. The cost of carcinogenicity testing of profitable, and potentially profitable, chemicals, should be borne by the industries concerned, and not by NTP and the NCI and ultimately the taxpayer.

"10. The NCI should undertake large scale intramural and extramural research programs to characterize known carcinogenic exposures, both industrial and lifestyle, in terms of their estimated impact on cancer, and the practical feasibility of their avoidability or elimination within defined early periods." (In this connection, it is noted that NIH is distributing over $30 million from NCI throughout other Institutes in 1992 [JNCI, 1992].)

"11. The NCI should substantially expand its intramural and extramural programs on epidemiology research and develop large scale programs on sensitive human monitoring techniques, including genetic and quantitative analysis of body burdens of carcinogens, and focus them specifically on cancer cause and prevention. The NCI should also take a key role in the design, conduct and interpretation of epidemiological investigations of cancer by federal and state regulatory and health agencies and authorities.

"12. The NCI should develop large scale training programs for young scientists in all areas relating to cancer cause and prevention.

"13. Continued funding by the NCI of its comprehensive cancer centers should be made contingent on their developing strong community out-reach programs in cancer cause and prevention, as opposed to their present and almost exclusive preoccupation with diagnosis and treatment. Centers should also establish tumor registries focused on identifying environmental and occupational carcinogens, and on the surveillance of occupational and other populations at high risk of cancer.

"14. With Congressional oversight and with advice from the NIH Office of Scientific Integrity, the NCI should take early action to disclose information on any interlocking financial interests between its Panel, Advisory Board, advisory committees and others in the cancer establishment (including directors of comprehensive cancer centers), and major pharmaceutical companies involved in cancer drugs and therapy, and other industries. The NCI should also take the necessary precautions to prevent any such future conflicts.

"15. The NCI should be enjoined from making or endorsing claims for new 'cancer cures' unless these are clearly validated by data on reduced mortality rates and unless they conform to standard FDA regulations on claims for therapeutic efficacy."

Mechanisms

Recognizing the powerful complex of interlocking obstacles to their proposed reforms, the group of 68 experts concluded:

"There is no conceivable likelihood that such reforms will be implemented without legislative action. The National Cancer Act should be amended explicitly to reorient the mission and priorities of the NCI to cancer cause and prevention. Compliance of the NCI should then be assured by detailed and ongoing Congressional oversight and, most critically, by House and Senate Authorization and Appropriation committees. However, only strong support by the independent scientific and public health communities, together with concerned grassroots citizen groups, will convince Congress and Presidential candidates of the critical and immediate need for such drastic action."

The emergence of these proposals by the group of 68 experts poses a unique challenge to the current policies and priorities of the NCI, and a unique opportunity for developing appropriate drastic reforms. Of critical importance is the need for additional industrial medicine professionals to join this group, endorse its objectives, and actively participate in the planning and implementation of future strategies. (Readers interested in reviewing a complete copy of the group statement with a view to possible endorsement are invited to contact the author.) Endorsement should also be solicited from other scientific and public health professionals. Tens of thousands of avoidable cancer deaths each year should prove an adequate stimulus to abandon customary scientific reticence, and proceed instead with aggressive action programs including media campaigns and the enrollment of support from organized labor, and from nationwide grassroots citizen groups.

Equally critical is the need for active support for Congress, particularly members of NCI Appropriations and Authorization committees who have demonstrated concern for setting high priorities for primary cancer prevention. They should be encouraged to develop initiatives including the following: requiring NCI to accept a realistic definition of primary cancer prevention (excluding both important but irrelevant programs on chemoprevention, and scientifically questionable programs, such as nutrition per se), based on research and interventions for reducing or eliminating exposure to avoidable carcinogens in air, water, food, the home, and the workplace; requiring NCI to submit a detailed annual report on all primary prevention programs with abstracts and line item budget allocation for each; developing appropriate mechanisms for the scientific evaluation of NCI primary prevention programs by qualified independent experts; developing progressive "set-aside" appropriations, such as 10% of the total budget each year, for primary prevention until they reach parity with all other NCI programs combined, ideally within a five-year period; complying with the National Cancer Act requirement (Section 407) that at least five members of NCI's Advisory Board should be "individuals knowledgeable in environmental carcinogenesis" (there have been five potential vacancies on the Board since 3/9/92); requiring NCI scientists to provide expertise to Congress, Federal, and regulatory agencies, and local authorities concerned with legislation and regulation of avoidable exposures to environmental and occupational carcinogens; and amending the National Cancer Act as follows:

"The NCI should be removed from direct Presidential authority, and reintegrated within NIH, and thus made directly responsive to the scientific community at large and the advice and consent of Congress" [Epstein, 1992a].

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APPENDIX 5

International Journal of Health Services In Press

ENVIRONMENTAL POLLUTANTS AS UNRECOGNIZED CAUSES OF BREAST CANCER

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Submitted 3/9/93

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ABSTRACT

For over three decades, evidence has accumulated relating avoidable exposures to environmental and occupational carcinogens to the escalating incidence of breast cancer in the U.S. and other major industrialized nations. This evidence has been totally ignored by the cancer establishment, the National Cancer Institute and American Cancer Society, despite expenditures of over $1 billion on breast cancer research. Recognition of these environmental and occupational risk factors should lead to the belated development of public health policies directed to the primary prevention of breast cancer. Their recognition should also lend urgency to the need for radical reforms in the priorities and leadership of the cancer establishment.

RUNNING HEAD
UNRECOGNIZED ENVIRONMENTAL CAUSES OF BREAST CANCER

Breast cancer is a complex and heterogeneous group of malignancies that encompass distinct clinical entities, pathologies and etiologies. Nevertheless, three major classes of overall risk factors for breast cancers have been and still are conventionally recognized. The first is a familial history of breast cancer, particularly early age at onset. The second is reproductive or "estrogen-window" factors: early menarche; nulliparity; late menopause; and exogenous hormones including prolonged use of oral contraceptives from an early age, injectable depo-provera contraceptives, and long term post-menopausal estrogen replacement therapy, especially when combined with progestogens(1-4). The third is high fat diet.However, as confirmed by a series of recent case control and cohort studies, evidence for the role of dietary fat _per se_ is at best inconsistent and tenuous(2). The role of these risk factors in the aggregate has been incriminated in only 20 to 30 percent of all breast cancers(5,6). Furthermore, they cannot account for the escalating incidence of breast cancer, particularly in post-menopausal women, in the USA and other major industrialized nations; incidence rates in white women in the U.S. from 1950 to 1988 have increased by 57 percent, or by over 1 percent annually(7). These trends are real and, in large measure, cannot be explained away by the relatively recent large scale use of mammography screening(8,9).

Not one of the heavily funded U.S. and other nutritional studies on the relation between dietary fat and breast cancer has investigated, let alone even considered, the role of carcinogenic dietary contaminants(10). However, it has been known since the late 1960's that carcinogenic organochlorine pesticides which concentrate in animal and human fat, such as aldrin, dieldrin, chlordane and heptachlor, induce breast cancer in rodents(11-14). This creates the strong presumption for a causal role of such contaminants in human breast cancer, as the sites of cancer induced by carcinogens in experimental animals and humans are generally similar(15). Furthermore, DDT promotes breast cancer induced in male rodents by the unrelated carcinogen acetamidophenanthrene(16). The authors concluded that: "Because of their fat-solubility and tendency toward long-term deposition in body fat, particularly in the female breast, and the apparent ability of DDT to promote tumors in the mammary gland of the male rat, such agents might be considered possible contributors to the high incidence of breast cancer among women." Further evidence for the role of organochlorine carcinogens is provided by findings that DDT and PCBs concentrate in human breast cancer itself in contrast to adjacent non-neoplastic tissue(17). These organochlorines also concentrate in breasts with cancer in contrast to those with fibrocystic disease(18). Additionally, the pesticide hexachlorocyclohexane concentrates in breasts with cancer in contrast to normal breasts(19). Other and unique supportive evidence comes from reports that, in spite of increasing fat consumption and decreasing parity, breast cancer mortality in pre-menopausal Israeli women declined by 30 percent following regulations in the mid-1970's reducing the high levels of hexachlorocyclohexane and DDT in dairy products(20). The mechanism of action of organochlorine carcinogens in relation to breast cancer probably involves their estrogenic properties, reflecting their potent induction of p-450 cytochrome mixed-function oxidases, stimulation of estrogen metabolism and binding to human estrogen receptors(20);such properties reflect the recent characterization of these organochlorines as "xenoestrogens"(21).

Atrazine, a carcinogenic chlorinated triazine, has been and still is one of the most heavily used herbicides in the world(22). In view of its mobility in soil and aquatic stability, it is one of the commonest carcinogenic pollutants in European and U.S.surface waters, often exceeding the U.S. Health Advisory Level of 3 parts per billion. Atrazine exerts hormonal effects on the hypothalamic-pituitary-gonadal axis, with marked inhibition of 5-alpha steroid reductase[22]. Atrazine induces breast and other reproductive tumors in rats[22,23], and has also been incriminated in human ovarian cancer and lymphohematopoietic malignancies[24]. Nevertheless, the role of atrazine in human breast cancer has still not yet been investigated.

Estrogens are another important class of dietary contaminants resulting from their virtually unregulated use as growth promoting feed additives for cattle, hogs and poultry[25]. In view of the known carcinogenicity of exogenous estrogens, lifelong exposure to these contaminants is clearly a risk factor for breast cancer, as emphasized by Roy Hertz, NCI's former leading authority on endocrine cancer[26]. Furthermore, estrogens are known to synergize the carcinogenic effects of radiation of the breast[27,28], thus possibly further increasing risks of mammography[10]. Estrogens also synergize the carcinogenic effects in the breast of polynuclear hydrocarbon carcinogens[29]. More recent concerns on estrogenic dietary contaminants are provided by findings of increased breast cancer risk among women with pre-natal exposure to elevated estrogen levels(30). This also raises the possibility of similar effects of pre-natal exposure to maternal residues of organochlorine carcinogens.

Proximity of residence to hazardous waste sites has been associated with major increased risks of breast and other cancers(31). Most recently, the high increase in breast cancer incidence and mortality in Connecticut and suburban New York counties, especially Nassau and Suffolk, have been associated with consumption of milk and water contaminated over the last two decades with nuclear fission products, the short-lived radioactive iodine and the long-lived bone-seeking strontium-90, from the Millstone and Indian Point civilian nuclear reactors(32). An additional environmental risk factor in Nassau and Suffolk Counties may reflect past exposure from extensive agricultural use of carcinogenic soil fumigant pesticides, the organochlorine dichloropropane and the highly potent organohalogens ethylene dibromide and dibromochloro-propane, all of which induce breast cancer in rodents(33-37).

A variety of occupational exposures has been incriminated as risk factors for breast cancer. Excess incidence and mortality have been reported among women exposed to dioxin in a German pesticide plant(38), among women exposed to petroleum products including chlorinated organic solvents(39), and among professional chemists(40).

Not surprising is the recent conclusion "that there has been no progress in preventing the disease ", despite U.S. expenditure of over $1 billion on breast cancer over the last two decades(5). More surprising, however, is the persisting failure of the U.S. cancer establishment, the National Cancer Institute and American Cancer Society, to have recognized and investigated longstanding evidence on the role of a wide range of environmental and occupational risk factors for breast cancer besides a wide range of other cancers(10). Their recognition should result in the belated development of public health policies directed to primary prevention of breast cancer, and should also further reinforce recommendations for major reforms in the priorities and leadership of the cancer establishment(10).

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APPENDIX 6

March 26, 1990

Statement on Administration Policies on "Acceptable" Risks of Cancer

We express grave concerns at October 1988 EPA regulations (55FR 411050) allowing the intentional addition of carcinogenic pesticides to processed foods at levels allegedly posing "acceptable" risks of cancer. In October 1989, the Bush Administration proposed a Food Safety Plan which formally ratifies this new regulation. These new policies contravene the 1958 Delaney Amendment to the Federal Food, Drug and Cosmetic Act banning the intentional addition to food of any level of chemical carcinogen. Congress is now considering legislation ratifying the principle of "acceptable" risk.

The validity of the Delaney law, that there is no scientific way to determine safe levels or tolerances for chemical carcinogens, has been repeatedly examined and unequivocally endorsed over the last three decades by a succession of independent expert committees. The remarkable advances over the last three decades in our understanding of the molecular mechanisms of carcinogenesis are fully consistent with the scientific basis of the Delaney law, with our inability to meaningfully define carcinogenic risk quantitatively, and with recognition of the importance of environmental and occupational carcinogens as major causes of cancer. The Delaney law thus provides a valid scientific basis for regulatory policies designed to prevent avoidable exposures to carcinogenic contaminants in food. In contrast, the "negligible" or "de minimis" policies of EPA and FDA, respectively, are based on attempts to manage risks at "acceptable" levels of 1/100,000 to 1/1 million excess lifetime cancers as estimated by quantitative risk assessment; in instances of alleged economic necessity, risks even in excess of 1/100,000 are allowed. However, quantitative risk assessment is based on mathematical models and questionable assumptions. The uncertainty and flexibility of these models allow their misapplication to reflect pre-determined non-scientific considerations and special interest pressures. Furthermore, these estimates are restrictedly based on residues of a single carcinogenic pesticide or food additive on a single food item; based on this simplistic assumption, EPA estimates that a 1/100,000 risk would result in some 2,500 excess lifetime cancers or 35 annual cancers in the U.S. However, EPA has admitted that it does not attempt to estimate aggregate cancer risks in a total diet; most fruit and vegetables contain residues of as many as 25 carcinogenic pesticides. Thus, based on EPA's risk estimates for a single carcinogenic pesticide, it becomes clear that residues of 25 carcinogenic pesticides on 25 food items eaten daily would result in some 22, 000 excess annual cancers. Furthermore, these estimates are minimal as they ignore the following incremental exposures: undisclosed inert carcinogenic pesticide ingredients; other carcinogens in food, notably color additives and residues of animal feed additive; and other chemical and radioactive carcinogens in air, water, and the workplace. EPA estimates also ignore unpredictable synergistic interactions from these multiple exposures. Additional flaws in EPA and FDA estimates include: their basis on extrapolation from high dose carcinogenicity tests in animals, thus underestimating low dose-response effects; their basis on lifetime carcinogenicity tests, thus underestimating responses from exposures of shorter duration; differences in risks posed by early and late stage carcinogens; ignoring the increased sensitivity of the fetus and infant; and ignoring other important toxic effects of carcinogenic food contaminants, particularly genetic, reproductive and behavioral.

The new policy for regulation of carcinogenic pesticides in food, based on risk management rather than risk prevention, is likely to reverse major current trends on reduction in the manufacture and use of agricultural pesticides in general and carcinogenic pesticides in particular. More seriously, this new policy creates dangerous precedents for opening the floodgates to "acceptable" risks from innumerable carcinogens, in air, water and food, regulation of which is totally ceded to the discretionary authority of highly politicized federal agencies. Very recently, following a court enforced ban on the food color Red No. 3, DHHS Secretary Sullivan announced that he would request Congress to repeal the Delaney law on which the ban was based in view of recent scientific advances which have allegedly made this law obsolete. Still more ominously, OMB economists have attempted to enforce on OSHA's scientists new definitions of chemical carcinogens, which would restrictively exclude from regulation the majority of chemicals found to be carcinogenic in valid animal tests, and which would impose requirements for epidemiological confirmation of animal carcinogenicity data.

We urge staunch opposition to Administration policies and proposed Congressional legislation allowing and legitimizing avoidable residues of carcinogenic pesticides in food. Instead, the Delaney law must be strengthened and enforced, and uniformly applied to all avoidable carcinogens in food -- pesticides, food and feed additives. The principles of the Delaney law should also be extended to the regulation of avoidable exposures to carcinogens in air and water.

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APPENDIX 7

October 22, 1992

By Fax: (301) 402-0338

Dr. Samuel Broder
Director
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Building 31, Room 10A-03
Bethesda, Maryland 20892

Dear Dr. Broder:

Attached please find a self-explanatory statement on the NTP bioassay program by doctors Bingham, Infante, Landrigan, and myself. This has, so far, been endorsed by some 60 leading national authorities on cancer prevention and public health.

On September 4, 1992, Dr. Adamson, director of the Division of Cancer Etiology made a statement (quoted in the 9/4/92 Environmental Health Letter) in full support of the recommendations proposed by the NTP Board. His statement trivialized hazards from industrial pollutants, such as carcinogenic pesticides on food. He also supported NTP's recommendations on the need for mechanism studies before a chemical could be classified as carcinogenic.

I should like to inquire whether Dr. Adamson's statement was authorized by your office and whether it represents NCI's official policy.

I also attach a copy of my August 10 letter to which I have not yet received a reply.

I would appreciate a personal reply at your very earliest convenience.

Sincerely yours,

Samuel S. Epstein, M. D.
Professor of Occupational
and Environmental Medicine

cc: Senator J. Glenn
Senator T. Harkin
Senator E. Kennedy
Senator H. Metzenbaum
Cong. D. Obey
Cong. H. Waxman
Drs. E. Bingham, P. Infante, P. Landrigan

October 1, 1992

PROPOSAL TO SCUTTLE FEDERAL CANCER TESTING

In 1968, the National Cancer Institute established a unique bioassay program for the large scale carcinogenicity testing of industrial, consumer, and natural products. In order to expand this program, the Department of Health Education and Welfare transferred it in 1978 to the newly established National Toxicology Program (NTP) within the National Institute of Environmental Health Sciences. Chemicals found to be carcinogenic, and thus posing risks to the workforce and public, have been listed in NTP's Annual Reports which receive wide general distribution.

From 1979 to 1982, NTP tested an average of 40 chemicals annually. This declined sharply to ten a year over the succeeding decade, during which its budget, adjusted for inflation, declined by 46 percent. In 1992, only four new chemicals are being tested. This, at a time when the high incidence of cancer is rising still further.

In the July 17, 1992 Federal Register, NTP made a series of recommendations which would effectively scuttle its already attenuated testing program. These recommendations are receiving strong support from the American Industrial Health Council. NTP maintains that there is "too much emphasis on testing _per se_, and not enough emphasis on providing the mechanistic insight required for a realistic interpretation of the testing results with regard to human health." In other words, the predictive value of experimental evidence on carcinogenicity to human cancer risk would be made conditional on determining the mechanism of action involved. By this criterion, no single substance, even asbestos, would ever have been classified as carcinogenic.

In flagrant violation of standard principles and protocols, NTP announced other recommendations which would still further reduce the sensitivity of carcinogenicity testing. These include the use of fewer test animals, and testing at low doses which would reduce the likelihood of identifying any carcinogen.

We urge the following:

1. NTP should immediately withdraw its ill conceived proposals.

2. NTP should continue testing in accordance with well established standard protocols.

3. NTP should restore the scope of its testing program to a minimum of 40 chemicals annually, the numbers tested from 1979 to 1982. Such a level would ensure that all chemicals nominated and approved for testing will be promptly tested.

4. NTP should use the existing authority of the Toxic Substances Control Act to institute user fees to defray the costs of testing profitable chemicals. This burden is now being borne by the general public.

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Washington, D. C.

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* The views expressed herein do not necessarily reflect those of any federal agency.

APPENDIX 8

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June 24, 1993

President Bill Clinton
The White House
Washington, D.C

Dear President Clinton:

America is losing a winnable war against a dreaded disease, cancer. We can prevent unnecessary suffering and deaths only by radically reforming federal cancer policy to emphasize prevention rather than just diagnosis, treatment and basic research. The undersigned cancer and public health professionals urge you to undertake a thorough reform of cancer policies throughout your Administration, and make prevention the guiding strategy for the war against cancer.

Over the last decade, some five million Americans died of cancer. Cancer now strikes one in three and kills one in four Americans, with over 500,000 deaths last year. Cancer Incidence rates in the white U.S. population (adjusted for increasing longevity) have increased by 43% from 1950-1988. During this time breast cancer has increased by 60%, childhood cancer by 21%, and other cancers by over 100%. A recent report by the American Hospital Association predicts that cancer will become the leading cause of death by the year 2000, and the "dominant specialty of American medicine".

There is substantial evidence that many of these cancers are due to avoidable exposures to industrial carcinogens in air, water, food, and the workplace. Meanwhile, our ability to treat and cure most cancers has remained virtually unchanged. From 1973-1988, 5-year survival rates have remained about 50% for the overall population and only 38% for Afro-Americans. The cancer mortality rate for black males is over four times higher than for white males.

The annual costs of cancer, an estimated $110 billion (nearly 2% of the GNP), are major inflationary factors in the current health care crisis with Per-case Medicare payments exceeding those for any other disease. These costs seriously threaten your Administration's efforts to provide health care to all Americans.

Even as cancer incidence escalates, the National Cancer Institute (NCI) continues to mislead the public and Congress with claims that we are "winning" the war against cancer. The NCI, which still attributes most cancer to smoking and dietary fat, discounts or ignores the causal role of avoidable exposures to occupational and environmental carcinogens and devotes minimal priorities and resources in its $1.9 billion budget to these concerns.

Your Administration offers great hopes for changing the nation's misdirected cancer policies and reversing the cancer epidemic. We attach a statement of reforms as general guidelines for redefining the mission and priorities of the NCI. We urgently request a meeting with your staff to discuss how we can work together to win the war against cancer.

Sincerely,

Samuel S. Epstein, M.D.
Professor of Occupational and
Environmental Medicine
(List of co-signatories attached)

Dean Abrahamson, M.D., Ph.D., Professor Public Affairs, University Minnesota
Nicholas A. Ashford, Ph.D., J.D., Associate Professor Technology & Policy, Massachusetts Institute of Technology, Cambridge
Louis S. Beliczky, M.S.,MPH, Director Industrial Hygiene Safety, United Rubber Workers, AFL-CIO
Rosalie Bertell,Ph.D., President International Institute of Public Health Concern, Toronto, Canada
Eula Bingham, Ph.D., University of Cincinnati Medical Center (former Assistant Secretary of Labor, OSHA)
Irwin D. Bross, Ph.D., President Metatechnology, Buffalo, (former Director Biostatistics, Roswell Park Memorial Institute)
Barry Castleman, Ph.D., Enironmental Consultant, Baltimore
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Michael Ellenbecker, Ph.D., Professor Work Environment, University Massachusetts Lowell
George Friedman-Jimenez, M.D., Medical Director, Occupational & Environmental Health Clinic, Bellevue Hospital, New York
Richard Garcia, Ph.D., Entomologist, University of California, Berkeley
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Franklin E. Mirer, Ph.D., Director Health & Safety Department United Auto Workers, Detroit

David Monroe, Ph.D., Toxicologist, Oak Harbor, Washington

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Daniel Teitelbaum, M. D., Professor Environmental Sciences Colorado School of Mines, Clinical Professor Preventive Medicine, University of Colorado, Denver

Mr. TOWNS. Thank you very much.

Thank you very much, Dr. Epstein.

Dr. Davis. I understand there's a little problem, that Dr. Epstein has to take a plane.

So, if there are any questions that the members would like to raise with him, if the other panelists will allow us to do it now, I think the only question that I would have for you, Dr. Epstein, is: You indicated that NCI should provide leadership, but they should not get involved in regulations. How do they do that?

Dr. EPSTEIN. Sir, this is very simple.

They should say: There is clear-cut evidence relating the escalating cancer rates to the vast increase in the manufacture of industrial carcinogens from 1 billion pounds per annum in 1940 to over 500 billion pounds per annum of industrial chemicals and carcinogens in the mid-1980's. This is the first point.

There's a vast amount of experimental data in animals. There's a vast amount of epidemiological data.

But, at the present moment, as I said before, less than 2.5 percent of their budget goes into this. Having said that, what is needed is to systematize the information on what carcinogens there are in the air, the water, the food, and the workplace, to make this information available to the appropriate agencies, to advise them on the fact that we don't know of any way of setting safe levels for carcinogens, to advise them on the fact that the only way to cope with this is to phase out—is, first of all, to inform the public, because the public has the right to know, and to phase out the manufacture, use, and disposal. They should take the initiative, together with other agencies, the lead initiatives in studying methods of replacing these chemical carcinogens with other alternatives.

So, in other words, we fund the National Cancer Institute with $2 billion a year. Half this budget goes on treatment and diagnosis, which has been largely ineffective in terms of reducing most cancer rates, why the substantial proportion going to basic research? And, if you read quotations in my statement from the leading molecular biologists who received most of these funds, they frankly admit their work's got nothing to do with cancer, let alone cancer prevention.

So, there has to be a Manhattan project directed in moving in the direction of these three areas: One, a shift of the total budget, in terms of prevention; two, informing the public and workers of monitoring data on avoidable carcinogenic exposures; and three, taking a lead in providing the scientific basis to Congress for phasing out the manufacture, use, and disposal of carcinogens.

The NCI has never testified on this to Congress. It has been silent on issues like the Delaney amendment, which are fundamentally scientific issues. These are areas which time doesn't permit to dwell on in detail, but which I detail for you in the attached statements. I also detail a wide range of further information on budget and budgetary imbalances and the way the National Cancer Institute has misled the public and Congress over the last few decades.

Mr. TOWNS. Thank you.

At this time, I yield to Congressman Ackerman.

Mr. ACKERMAN. Thank you very much. Thank you, Dr. Epstein.

I certainly share your concerns that we're not sufficiently focusing on preventing cancer by identifying the environmental carcinogens.

Could you possibly suggest why, in your opinion, NCI has been slow in focusing on the links between the environment and cancer?

Dr. EPSTEIN. With pleasure, sir.

First of all, I'm not suggesting the problem is lack of information. We have more than enough information to warrant immediate action. Our water and food are contaminated with carcinogens that induce breast cancer in rodents, and hence presumably in women. We're using hair dyes which were shown to induce breast cancer in the late 1970's. It isn't a shortage of information. We have more than enough information to keep us going for the next 20, 30 years. Action is needed. Not more research.

Demands for research are used as a mechanism for delaying the implementation of action. That is the first point.

The second point you raise is why does the NCI take this position. And this is a very interesting question, which I've studied now for some three decades in which I've testified repeatedly before Congress.

The basic issue is a professional mindset. The leadership of the National Cancer Institute is recruited from professionals who come from radiology, chemotherapy, oncology, and related areas, radiotherapy, and also basic research. They're fixated on areas of diagnosis, treatment, and basic research, and they remain largely ignorant or indifferent to areas of cancer prevention.

So, the first and important point is a professional mindset, and I think this is the major issue.

There are other factors which should be recognized, and this is conflict of interest. Let me point out to you the following: The chairman of the President's cancer panel, the first chairman of the President's cancer panel for 10 years, from the National Cancer Act in 1971, was Benno Schmidt, a New York investment banker deeply tied in with cancer drug industries, deeply tied in with investing in petrochemical and other industries standing to make a personal fortune every time a cancer drug got on the market.

The second was our dearly departed friend, Armand Hammer, for 10 years, the CEO of Occidental Petroleum, one of the Nation's largest polluting industries who also gave us Love Canal. These two gentlemen directed policies for the National Cancer Institute for nearly 20 years.

The third point is, and we have analyzed this in detail, if you look at the relationship between the National Cancer Institute, American Cancer Society, and cancer drug companies, you will find interlocking interests. In fact, an analysis of the board of overseers of New York's Sloan Kettering Memorial Hospital, which is the most important, comprehensive cancer center in the country, funded largely by the National Cancer Institute and, to a lesser extent, by the American Cancer Society, clearly reveals interlocking interests with the oil, the chemical, the petrochemical, and the banking industries, which are so close as to create a massive and a powerful lobby and a bias in terms of cancer treatment and diagnosis.

In addition to that, take breast cancer—Revlon, for instance, and Zeneca—Imperial Chemical Industries, are taking a lead in the petition drive, with 2.6 million signatures for more funds for breast cancer research and mammography. Revlon has dyes that induce breast cancer, for which we have experimental data in animals. We also have some epidemiological data. The breast cancer awareness program is largely a push by Zeneca of Imperial Chemical Industries, who's pushing the drug Tamoxifen for which the evidence that it will prevent cancer in healthy women is paper thin, but there's a wide range of evidence that it's a major cancer hazard. Again, there's vast pressures in the mammography industry to carry on with mammography in premenopausal women—the Fujii, the Kodak, et cetera—when there are techniques for massively reducing exposure to carcinogenic effects of mammography, for alternatives such as transillumination with infrared light scanning, which have been published and shown to be as effective as mammography.

And so, you're dealing with a complex of professional mindsets, powerful economic interests, and also conflicts of interest, sir.

Mr. ACKERMAN. I thank you for that exposition.

I'm concerned about something you suggested. Perhaps you can maybe expand on it a little bit.

You indicated in what you just—in your answer, just now, as well as in the statement that you made just prior to that, about the funds that are available, that we make available to the National Cancer Institute, and that half of it is going into treatment and research rather than prevention, and that the shift should be toward prevention.

I am concerned that we will wind up on a different one-track system, rather than on a two-track system, where I would rather be. I don't know, even with somebody's conflict of interest, I think it still is important to do research into drugs and new drugs to treat those people who have come down with cancer, to possibly find ways of slowing it, stopping it, ending it, as well as additionally building up additional funding and focusing on prevention.

Rather than a shift, I would like to see those tracks pursued at the same time.

Do you have a comment on that?

Dr. EPSTEIN. I couldn't agree with you any more. What we're talking about is the need for correcting the imbalance between these two tracks. At the present moment, as I said, less than 2.5 percent of the NCI budget goes on prevention of avoidable exposures to——

Mr. ACKERMAN. Yes, I just—I just want to know if you agreed with that.

Dr. EPSTEIN. I agree with you. But what I'm talking about is a need for a balance.

I don't believe we need more funds. I believe, first of all, that the NCI has misled the public in terms of their claims for major advances and ability to treat and cure cancer, and this has stimulated demand for more and more funds for cancer research, for treatment and cancer research.

As a pathologist who has done more post-mortems on children with cancer and adults with cancer, I completely share your views that the more effort we put into cancer treatment, the better it is.

But, there is a massive imbalance, and Congress has been misled by the trivial amounts which NCI has devoted to prevention.

We're talking about——

Mr. ACKERMAN. My only—my only point, doctor, is let's fix the imbalance, if we can, not by shifting the money that we have into, from research in drugs and all those other things, and treatment, and shifting that money to balance the scale, but let's come up with a bigger pie so that there is money for all of those things.

Dr. EPSTEIN. Sir, the National Cancer Institute has maintained that it spends a third of its budget on prevention.

Let us hold their feet to the fire and make sure that they do spend a third. I and my colleagues would be content if, indeed, they did truly spend one-third on informing the American public of avoidable exposures to carcinogens in air, water, food, and the workplace, and helping provide the scientific impetus for labeling. I repeat. We label food for cholesterol. We don't label food for avoidable carcinogens. They should take the lead in that. Let's hold their feet to the fire on this third of their budget, minimally, and I and my colleagues would be satisfied.

Mr. ACKERMAN. Thank you, sir.

Mr. TOWNS. Thank you very much, Congressman Ackerman.

Congressman Rick Lazio.

Mr. LAZIO. Just one quick question, Mr. Chairman, for Dr. Epstein.

You struck me by talking about labeling and how that could provide at least a step toward elimination of industrial carcinogens. Is there an acceptable level or is there a threshold carcinogen level that you would suggest would be, have to be met before it would be included in labeling or disclosure?

Dr. EPSTEIN. There's an overwhelming consensus in the informed, independent, scientific community and this has been reiterated by expert bodies over several decades, that there's no way of setting safe levels for chemical carcinogens in our air, in our water, in our food, and workplaces, a great deal of experimental data shows that there is no way of setting safe levels.

The only way of doing this is phasing out the manufacture, use, and disposal. We already know that you can get similar levels of agricultural productivity absent pesticides. There's a variety of techniques—alternative agriculture, sustainable agriculture, integrated pest management.

But, it's up to the National Cancer Institute to come and say this is an avoidable source of exposure. We must get rid of it. And not to pay lip service to highly dubious, politicized methods of attempting cancer management based on antiquated cancer risk assessment.

In this connection, I would like to make one final point. You will be hearing this afternoon from Dr. Aaron Blair, who is chief of occupational epidemiology of the National Cancer Institute. His budget is $20 million a year. The work of Dr. Blair is outstanding. It is superb work, nationally recognized and internationally recognized. If Dr. Blair's program could have $200, $300 million a year, and if we had mechanisms for implementing the findings of his programs, similarly if we had methods for implementing evidence that we have of carcinogens and chemicals which have been shown to be carcinogenic in well-defined systems—hair dyes in the 1970's, and DES in 1938—we would be wiping out a major increase in cancer rates within a few decades.

Mr. LAZIO. Thank you.

Mr. TOWNS. Thank you very much.

Congressman Hochbrueckner.

Mr. HOCHBRUECKNER. Mr. Chairman, I think Dr. Epstein well made his point.

I have no questions.

Mr. TOWNS. Thank you very much.

Let me thank you, too, Dr. Epstein. I know that you have to make a flight and we appreciate your time and your coming in and sharing with us, and I'll tell you that you hit upon something that I'm very concerned about. That is, the fact that information is not getting out in this area where we know that there is a problem. I believe that if we get the information to the people, they might be able to protect themselves. And I want to let you know that I'm very concerned about the fact that we're not spending enough, in terms of getting the information out to people. I think that we need to look at that.

Dr. EPSTEIN. You, sir, are not being provided with the information by the National Cancer Institute.

Mr. TOWNS. Right.

Mr. ACKERMAN. I'm glad you said that, Mr. Chairman, because I thought you were going to express a concern about hair dye.

Mr. TOWNS. Well, see, I don't have that problem. [Laughter.]

I'd be a good research item.

Thank you very much, Dr. Epstein.

At this time, I would like to thank Dr. Davis, and Dr. Sternglass, for allowing us to take Dr. Epstein out of order, and to say to you that we appreciate your patience.

Dr. Davis, at the present time, is senior policy advisor at HHS, but—and I say this, that HHS would not allow her to testify today on behalf of HHS. She's here as a private citizen. Dr. Davis has a lot of experience in this area. Senator D'Amato referred to her with high praise for her expertise, her knowledge, and her information. We are just delighted to have you here today, even as a private citizen. Dr. Davis is also the founding coordinator of the Breast Cancer Prevention Collaborative Research Group, and she's a visiting professor at Mount Sinai Medical Center. Dr. Davis, we really appreciate your being here and we're anxious and eager to hear your testimony.

STATEMENT OF DEVRA LEE DAVIS, Ph.D., M.P.H., FOUNDING COORDINATOR, BREAST CANCER PREVENTION COLLABORATIVE RESEARCH GROUP AND VISITING PROFESSOR, MOUNT SINAI MEDICAL CENTER

Dr. DAVIS. Thank you very much, Mr. Chairman, and I want to thank you and your staff for the good work they've done in pulling together this important hearing.

Mr. TOWNS. Pull that microphone just a little bit closer, doctor.

Dr. DAVIS. Which one? This one? All right.

I am here, as you said, as a private citizen and as a researcher and I welcome the deliberations of this subcommittee. I think we can say that cancer is an equal opportunity and nonpartisan disease, and I think it's really noteworthy that so many members are here on this wonderful day, and that Senator D'Amato was here as well.

I'm going to basically talk with you today about three things: First, I'm going to briefly describe recent patterns of cancer in the United States, and then I'm going to discuss some theories we've developed about breast cancer; and finally, I'm going to recall a parable about why we may be in the dilemma that we are with respect to cancer control by reminding you about lung cancer and smoking.

Well, what do we know about cancer? In fact, we have good news and bad news to report, as the Director of the National Cancer Institute has said, on a number of occasions.

The good news is that deaths from a number of forms of cancer have, in fact, dropped, including stomach cancer and lung cancer in white men, and ovarian cancer, stomach cancer, and cervical cancer in women. Also declining are deaths due to the relatively rare cancers of children and young adults, such as testicular cancer and leukemia.

But, the bad news is that deaths from a number of other types of cancer are increasing, and that new cases of cancer are increasing in people of most ages. Even though we have fewer deaths, we're having more cases in many types of cancer. And, for women, of course, smoking-related cancer is a very important problem.

In addition, we have found over the past decade that more men than women are dying of cancer today, and more African Americans than whites are dying of cancer today, even when you take out smoking-related cancers. And, as I said, new cases are continuing to increase.

We have some clues about what could be behind these causes of the increased cancers, and they come, in fact, from work that has been done by Dr. Blair and his colleagues at the National Cancer Institute. What we do know is that farmers die less often of certain causes of death, but they die more often of some types of cancer, and Dr. Blair will talk to you about those. But, I think, for our purposes, the thing that's most interesting to figure out is this: the same types of cancer that are increased in farmers have also recently been increasing in the developed population of many countries. That is an important clue, because what we think may be behind the increases in these cancers in farmers could also be behind the increases of the same types of tumors in the general populations, and those include exposures to pesticides, engine exhausts, solvents, animal viruses, and sunlight.

In addition, there have been several other studies that have linked residential uses of pesticides and cancer, including one study that found that dogs of homeowners that used more lawn chemicals died 2 to 3 times more often of certain forms of cancer, and dogs that worked in Vietnam also died more often of certain forms of cancer, when compared to dogs that did not have those exposures.

One study found that children from homes with increased uses of common household pesticides on gardens, pets, and children contracted 3 to 6 times more brain cancer. Now, household use of lawn chemicals represents one of the largest and fastest-growing markets in this country today.

In fact, it's possible to buy some agents for your use in your household, on your dogs and children, which would require protective clothing if you were a professional applicator in the agricultural industry.

Now, I want to turn briefly to some new ideas about preventable environmental causes that could lie behind the recent patterns that we've seen in Long Island.

For almost a decade, as you are well aware, women on Long Island have been raising Cain about the high rates of breast cancer there. At first, they were told that the rates really weren't that high and, more recently, it was suggested that it was all just their fault. They were too rich, and too fat, and had eaten the wrong foods for years and, by the way, they had forgotten to have their children early enough. It was even alleged it was their mothers' fault, because most of them were Jewish and Jewish women do have higher rates of breast cancer and we have a lot of guilt to go around in the Jewish community.

But—and it is true that many of the known risk factors for breast cancer are elevated in the women of Long Island. But these risk factors do not explain the whole story. And, if they did, then the generation of women in the United States today in their 60's should be getting less breast cancer and they are, in fact, getting more. Even though screening explains some of the increase, it does not explain all of it.

Now, we have to ask what do we know about breast cancer? What—what we can tell you is that the two most important risk factors are sex and age. That's all.

We can explain 30 percent of the cases, and for 70 percent, we don't know what the causes are. In only 5 percent is it inherited from a genetic direct inheritance.

What, we have determined is that total lifetime exposure to estrogen appears to be the thread that links together all of the known risk factors for breast cancer. And, recently, Mary Wolff and colleagues found, in their study, that there was a four-fold increase in breast cancer in women in the highest levels of exposures to pesticides, as measured by levels in their blood. Now, other studies on this same point have been negative, but most of those studies have involved small numbers of women, or have failed to take detailed information on such important factors as breast feeding, which can influence the outcome.

Recently, as you're well aware, a series of investigative articles in Newsday have pinpointed the fact that pesticide use on Long Island for decades occurred at levels hundreds of times higher than would have been permitted today. These pesticides were gassed into the soil, where they persisted, and leached into ground water, according to EPA models. Could they be playing some role in the patterns that we have here?

Well, I think that pesticides could be playing some role, but of course they could not explain all of what's going on, because breast cancer, like any disease, has multiple causes, many of which you can't do anything about. You don't get to pick your parents. You can't change what you ate three decades ago. But, you can change the things you are exposed to now.

It does turn out that not only pesticides have been implicated as stimulating estrogen, but so have a number of other chemicals that we need to look at, and these include plastics, volatile materials in fuels, drugs, and plant estrogens, naturally occurring estrogens, some of which are added to cattle feed. We also know, for example, that several million American women have been exposed to the synthetic estrogen, DES, during pregnancy, and millions more received higher doses of the old diagnostic radiation screening for tuberculosis, a treatment for breast pain, and other now-outdated radiologic treatments, which also could well have increased their current risk of breast cancer.

In closing, let me remind you about the story of lung cancer and smoking and why it is so difficult to establish a link between any environmental factor and cancer. When reports first surfaced in the 1950's that there was an increase in lung cancer, first a lot of people said it's not real. It's just we're getting better at detecting the disease. Then, they said, well, it can't be related to smoking. There's no known mechanism. We don't understand how it could possibly work. And that debate raged for about 20 years. And while that debate raged, millions of people became hooked on cigarettes and millions of farmers became hooked on the production of tobacco.

It is difficult to establish proof in this area, because scientific requirements for evidence are, in fact, quite stringent. You are charged with the difficult task, as are the regulatory agencies, of taking action in the face of incomplete information.

I work with statistics on huge data sets. That's what I can tell you about. This information that I've told you about here today cannot be used to prove or disprove specific causes of cancer. But, it does inspire all of us to do a better job of figuring out what lies behind this and what we need to do in the meantime.

A great teacher of mine once said that statistics are but human lives with the tears removed. If we manage to reduce exposures to cancer-causing agents in the environment and avoid only 20 percent of cancers each year, we will have saved 100,000 lives and spared thousands more family members of the dreadful consequences and many tears of confronting this growing disease.

Thank you.

[The prepared statement of Dr. Davis follows:]

TESTIMONY OF DEVRA LEE DAVIS, PH.D., M.P.H.

BEFORE U.S. CONGRESS SUBCOMMITTEE ON

HUMAN RESOURCES AND INTERGOVERNMENTAL RELATIONS

GOVERNMENT OPERATIONS COMMITTEE

October 30, 1993

INTRODUCTION

Thank you for the invitation to appear before this committee as you address important questions of the link between environmental exposures and public health. I am currently Visiting Professor at Mt. Sinai Medical Center in New York, Founding Coordinator of the Breast Cancer Prevention Collaborative Research Group, and a Senior Expert Advisor to the Assistant Secretary for Health in the Department of Health and Human Services. I have advised numerous national and international agencies on environmental and public health matters, and I am a Fellow in the American College of Epidemiology and a member of the American College of Toxicology.

My remarks today review the results of my published work with colleagues in several other countries. I am here today not as a representative of the federal government, but in my capacity as a private citizen and researcher. I am honored to be here today, and to appear before this committee, as you deliberate on ways to improve public health.

As you have requested, I will review several recently published papers that are relevant to this hearing, which have appeared in the

Journal of the National Cancer Institute, Environmental Health Perspectives, the Journal of the National Institute of Environmental Health Sciences, and the Lancet, the world's oldest medical journal.

A number of researchers at the U.S. National Cancer Institute, the World Health Organization, Health and Welfare Canada, the Karolinska Institute in Sweden and other other leading cancer research organizations have reported that there are persistent unexplained patterns in cancer in industrial countries, that cannot be attributed solely to smoking, aging of the population or improvements in diagnostic technology. That is, there are real, unexplained increases in cancer, that present important challenges to public health.

My remarks today will highlight three matters: first I will describe recent patterns of cancer in the U.S. and other developed countries, and discuss some possible explanations for these patterns; then I will review briefly the theory that environmental chemicals may account for some of the troubling and unexplained increases in breast cancer; finally, I will recall some lessons from the study of lung cancer and smoking that are relevant to current studies of environmental causes of cancer.

Cancer today is a disease of enormous complexity and importance for our society. Cancer care and treatment cost nearly $60 billion in 1992. In the U.S. today the National Cancer Institute reports that more than one out of every three persons will contract cancer, and one out of four will die of the disease.

We have both good news and bad news to report on cancer, as the Director of the National Cancer Institute, Dr. Samuel Broder has recently reminded us. The good news is that deaths from many smoking-related cancers, heart disease, and stomach cancer, are declining in white men in the U.S, as are ovarian cancer, stomach cancer, and cervix cancer in women. Also declining are deaths due to to the relatively rare cancers of children and young adults, such as testicular cancer and leukemia. The bad news is that deaths from types of cancer not known to be linked to smoking are increasing in both men and women of all ages, and that in women smoking related lung cancer continues to increase, as have breast cancer deaths. In addition, more men than women, and more African Americans than whites, are dying of cancer today, even when smoking related cancer is removed from consideration.

The reasons behind the persisting increases in many forms of cancer, and for the growing differences between the sexes and races, are unclear.

Many pieces of the cancer puzzle remain unresolved. Why do Japanese and Israeli men die less from lung cancer than their U.S. counterparts, despite smoking more? Why do American women and men die five times more of breast cancer than the Japanese? Why do African Americans die more often of several forms of cancer than others? Could higher risks have something to do with higher levels of pesticides or other chemical residues, or with cooking practices that increase the production of cancer causing agents? We need to find out.

Some clues about causes of these general increases in cancer have been provided by a series of studies on farmers. By deftly pooling results from 20 studies in 8 countries, leading researchers at the U.S. National Cancer Institute (NCI), working with Dr. Aaron Blair and others, have generated some fascinating signals about what might lurk behind these recently increasing cancers. Farmers and residents of rural agricultural areas in the central U.S. die less often of heart disease and lung cancer, probably because they lead healthier lifestyles and smoke less. But, farmers die more often from a number of other types of cancer, including brain cancer, multiple myeloma, kidney cancer, skin and prostate cancer. Many of these same types of cancers are growing throughout the industrial world.

Among the factors that may account for farmers' increased rates of cancer are their relatively high exposures to pesticides, solvents, engine fuels and exhausts, sunlight and animal viruses. Could similar exposures explain general population patterns? Production of several forms of pesticides has quadrupled in the past two decades, as has the use of some household chemical products and lawn chemicals.

Several studies have linked residential uses of pesticides and cancer. NCI researchers reported last year that dogs of homeowners that use lawn chemicals, and military dogs that served in Viet Nam have 2 to 3 times more cancer, than dogs without such exposures. One preliminary study noted that children from homes with increased uses of common household pesticides on their gardens, pets, and children, have between 3 and 6 times more brain cancer. Household use of lawn chemicals represents one of the largest and fastest growing markets for pesticides in this country today. It is possible to buy some agents for use in your household, on your dogs and children, which require protective clothing if they are used by professional applicators in agriculture.

Thus, a prescription pesticide shampoo for head lice treatment can be applied to your child, that, if applied in a crawl space by a certified pesticide applicator would require special protective gear.

Now I want to turn to some new ideas about what preventable environmental causes could lie behind recent patterns in breast cancer. Make no mistake, although improved access to screening accounts for some part of the recent increase, it cannot explain all of it.

For almost a decade women on Long Island have been raising cane about the high rates of breast cancer there. At first, they were told the rates were really not that high. More recently, it was suggested that it was all their fault. They were too rich, and too fat, had eaten the wrong foods for years, and had forgotten to have enough children early enough. It was even alleged that it was their Mothers' faults. After all, Jewish women do have higher rates of breast cancer.

It is true that many of the known risk factors for breast cancer are elevated in the women of Long Island. They have generally eaten richer diets, and may have been more overweight, and had children later in life. But, these risk factors do not explain the whole story. If they did, then the generation of women now in their sixties in the U.S. should be getting less breast cancer, and they are , in fact, getting more.

Women who started out working in factories as Rosie the Riveter with the newly industrialized war workforce, ended up living out the feminine mystique, where they used household chemicals to keep their homes impeccably neat, and also had children relatively early in their lives. They ate diets that may have been contaminated with early organochlorine pesticides in animal fat and dairy products, took early versions of high dose birth control pills, and had higher exposures to diagnostic and therapeutic radition. Could these be playing a role?

Let's consider what we do know about breast cancer....
For breast cancer, the two most important risk factors remain sex and age. Known risk factors account for 30% of the disease. Genetics explains only about 5% of all cases, that is to say, that breast cancer is directly inherited in very few cases.

Based on what is known about the disease, my colleagues and I have developed a theory of xenoestrogens as preventable causes of breast cancer and a host of other diseases, such as testicular cancer and sperm count reduction.

The evidence that chemicals can function as hormones is abundant and comes from 4 different types of scientific studies: human and animal cell cultures; experimental animal studies; wildlife biology; and human epidemiology. This is elaborated on in the attached paper from the National Institute of Environmental Health Sciences journal, Environmental Health Perspectives, which is attached for your information.

Recently, a well-designed New York study by Mary Wolff and colleagues, published in the Journal of the National Cancer

Institute, found that women with the top 10% of exposure to some organochlorine pesticides have four times more breast cancer, when compared with those in the lowest 10%. Other studies have been negative, but have usually involved small numbers of persons studied with insufficient attention to detailed information that is relevant, such as duration of breastfeeding and age at first pregnancy.

Recently, a series of investigative stories in Newsday have provided some other important parts of the Long Island breast cancer puzzle that need to be explored. Some organochlorine pesticides were used in Long Island for decades at levels hundreds of times greater than would be permitted today. They were gassed into the soil, where they persisted, and leached into groundwater, according to EPA models. Could they be playing some role in the unexplained patterns here?

When we think about breast cancer, we are forced to admit that for many of the risk factors there is little that can be done.

You cannot pick your parents, or change what you ate 3 decades ago. So we need to find out what else is going on?

Regarding breast cancer, my colleagues and I have recently developed a theory that ties together the known risk factors and speculates about other important causes. All the known risk factors for breast cancer are linked by total lifetime exposure to estrogen. Thus, the earlier in life a women gets her period, the later in life she enters the change of life, and the fewer children that she has, the greater the amount of estrogen she will be exposed to her overall.

My colleagues at five major medical centers and I have reviewed evidence from a variety of fields and have learned that a number of toxic chemicals add to the natural production of estrogen. Moreover, the metabolism of estrogen involved appears to lead to greater production of more toxic forms of estrogen and lower levels of less toxic estrogen.

Could organochlorine pesticides explain all of the recent patterns of breast cancer? Of course NOT. Indeed, it turns out that a number of other chemicals also have affects on estrogen experimentally, including plastics, volatile materials in fuels, pharmaceuticals, and plant estrogens, some of which are added to beef. We know, for instance, that up to 10 million American women received the synthetic estrogen DES during pregnancy. We also know millions more received higher doses of old diagnostic radiation for screening for tuberculosis, treatment for breast pain and acne, and other now outdated treatments, that could also have increased their risk of breast cancer. Current doses of diagnostic radiation are sometimes thousands of times lower than they were three decades ago.

We need to ask about the relative potency of all of these materials for stimulating estrogen, as well as the type of estrogen metabolism that they produce. The newly confirmed Assistant Administrator for Prevention, Pesticides and Toxic Substances, at EPA, Dr. Lynn Goldman, has indicated that her Agency will be taking a new look at these issues, as it develops additional approaches to registration and review of existing pesticides and toxic chemicals.

While we await the research and development and regulatory efforts to resolve these matters, some advice appears reasonable to all those concerned with reducing the risk of breast cancer. We do know that cancer appears remarkably sensitive to nutritional influences, even late in the game. Thus, women with breast cancer who consume diets relatively low in fat, have lower rates of recurrence, or developing second tumors, according to an article in the Journal of the National Cancer Institute. Even women who have had breast cancer live longer if they eat a lower fat diet. Recently, the Journal of the National Cancer Institute also reported that fat contained in corn oil produces higher rates of breast cancer in animals, while fat contained in fish produces lower rates.

The lessons of all this for those who confront breast cancer today are clear. To reduce your risk of breast cancer, it is never too late to start to increase your regular exercise, eat a diet rich in fruits and vegetables, reduce their intake of animal and dairy fats, and avoid or reduce exposures to suspect chemicals.

When reports of elevated of lung cancer first surfaced in the 1940s, most medical experts chalked this up to improved detection of cases previously attributed to tuberculosis. They were right that some of the recorded increase reflected improvements in diagnostic ability. A number of distinguished pathologists warned that increasing cases of lung cancer were linked to the habit of smoking, but their warnings went generally unheeded. Not until nearly three decades later, did governments formally acknowledge that smoking had induced an epidemic of lung cancer. Only after more than 50 separate studies had confirmed the association. In the meantime, millions of smokers and tobacco farmers had become hooked, the former through an insidious advertising program that promised sexual vigor and weight loss, and the latter via extensive subsidies.

Most of the known causes of cancer today pose daunting control problems, including the fiercely addictive habits of cigarette smoking, overeating, and alcohol consumption, terrestrial radiation, sexually transmitted viruses, and genetics. Without question cigarette smoking remains the single most important preventable cause of about 40 % of all cancer. As to the other 60 % of the disease, scientists are now pressing ahead with efforts to tease out as-yet-unrecognized causes of cancer that may more readily be controlled or influenced.

Like most epidemiologists, I work with statistics on huge data sets. A great teacher of mine once said that statistics are but human lives, with the tears removed. If we manage to reduce exposures to cancer-causing agents in the environment and avoid only 10 % of all cancer each year, we will have saved 50,000 lives, and spared thousand more family members of the dreadful consequences of confronting this growing disease.

Mr. TOWNS. Thank you, Dr. Davis, for your compelling testimony. Dr. Sternglass.

STATEMENT OF ERNEST J. STERNGLASS, PROFESSOR EMERITUS OF RADIOLOGY, UNIVERSITY OF PITTSBURGH SCHOOL OF MEDICINE

Dr. STERNGLASS. Thank you very much, Mr. Chairman, and I appreciate the opportunity to be here and testify on this important subject.

And, in fact, it reminds me that exactly 30 years ago, I appeared before the Joint Committee of Atomic Energy and warned them about the likelihood that one particular agent that was so common 30 years ago was likely to produce more leukemia and cancer in children than we had ever seen before, and that turned out to be the case. It was, in fact, the bomb testing that produced an enormous amount of radioactive contamination of our diet and food. And, at that very same time, Rachel Carson warned the world that the combination of radioactivity and organic chemicals, pesticides and other substances in the diet could eventually turn out to produce an enormous cancer epidemic. And I'm suggesting that this is exactly what has been happening.

And, therefore, we must turn our attention to why the National Cancer Institute and the Public Health Service did not and, in fact, could not examine this subject. And the tragic situation is it was uncovered by documents made available under the Freedom of Information Act in 1979 by Bill Currie and the Washington Post, that only when the study was mandated by congressional committee, the Public Health Service ordered the study to be done. Dr. Edward Weiss carried it out, and when it showed an increase in leukemia and childhood diseases and thyroid problems in the Utah and Nevada areas at the time, the Atomic Energy Commission at the time and the Department of Defense, prevented the study from being published.

And, as a result, for 30 to 40 years, we have not had any significant epidemiological studies carried out by our government agencies in the areas of extremely low-level contamination of our diet by radioactivity and especially in combination with many pesticides and other substances.

The reasons were a number, and I've outlined them in detail in the statement that I'm submitting, but the gist of the matter is that, in effect, we were misled by nearly a century of lack of serious side effects of ordinary chest x rays and other medical procedures. It turned out that a short burst of radiation, such as you get from a dental or medical chest x ray or any other, involves a totally different biological mechanism—namely damage to the DNA.

But, in 1972, it was discovered by a Canadian scientist by the name of Dr. Abram Petkau, that at low, chronic exposures, the kinds that Rachel Carson warned us about, at those low levels a different mechanism begins to dominate, called the production of free radicals, which are oxygen molecules that are negatively charged that attach to cell membranes and cause them to dissolve. And that was not understood until 30 years after the first nuclear reactors and the first fallout came down. And that has prevented us from being warned about the situation that is now happening here.

Because we did not realize that these low levels of radiation were so serious, we did not regulate our existing nuclear industry to the necessary level of essentially no discharges. We, in fact, allowed the reactors to be designed to the levels of radioactive releases that were allowed for the people of Nevada and Utah, during the bomb testing; and no one in the government could, under the pressure of the cold war, examine this situation.

And this is a tragedy that we're facing now.

And I would like to take a minute, if possible, to show you the key reason as to how this situation has affected the cancer rates across the Nation in recent years, and particularly here in the case of Long Island.

If I might do that, with your permission?

Mr. TOWNS. Sure.

Dr. STERNGLASS. What we have learned is that, although we thought that diagnostic x rays were harmless, Dr. Alice Stewart discovered that, indeed, the harm is much greater than ever could have been expected.

I think we need to move this much closer.

Dr. Stewart, Dr. Alice Stewart, in 1958 discovered that x rays given during pregnancy produced a much higher rate of leukemia, but nobody believed that this would happen in the environment. And that's because protracted radiation was believed to allow the body to heal itself.

But here we see what happened after the bomb testing began in 1940, 1945. A huge increase occurred in childhood cancers in Japan—this data is taken from the Japan Cancer Society. And this was never followed up by anyone.

And what it means is that we do have in the environment now radioactivity which, combined with all the other factors, has vastly increased the rates of leukemia and cancer all around the world. A single bomb produced by the Russians in 1960 caused a diagnostic x ray to be given to a few billion people around the globe.

Now, how do we know that this is not—not ended. The reason is that our nuclear reactors, unfortunately designed without knowledge of what Dr. Stewart had found, annually release Iodine-131 and particulates from nuclear power plants, as you can see, in large amounts. One curie is a trillion picocuries of the units that we worry about in the diet.

Now, therefore, we have an enormous amount of radioactivity that has been in many ways introduced into our water supply, because strontium-90 had a half-life of 30 years and continues to be emitted. Here there's a pattern of emission, with distance away from the Millstone Reactor, located only 10 miles from Suffolk, from the boundary from the tip of eastern Long Island. And, you can see that during the time of 1975, the radioactivity measured by the utility was as high or higher than during the height of nuclear bomb testing, and this was naturally something that no government in the world, including our own, could possibly investigate; because, in this case, the government was the polluter.

Mr. ACKERMAN. Doctor.

Mr. TOWNS. Just one moment. Doctor, could you yield just for a second?

Mr. ACKERMAN. Doctor, on that—on that chart——

Dr. STERNGLASS. Yes?

Mr. ACKERMAN [continuing]. And perhaps your subsequent chart, I'm concerned about the distances that you're indicating from this plant in Millstone, CT——

Dr. STERNGLASS. Right.

Mr. ACKERMAN [continuing]. And its measurements to Nassau and Suffolk Counties.

Dr. STERNGLASS. Right.

Mr. ACKERMAN. Do you have measurements, as well, for the equidistant points and other places——

Dr. STERNGLASS. That's right.

Mr. ACKERMAN [continuing]. In Connecticut?

Dr. STERNGLASS. That's right, and we have that in many distances. This goes away, all the way to Boston, and down to New York City. In fact, we have seen this around many nuclear plants, similar patterns of radioactivity being discharged from those plants.

Mr. ACKERMAN. Why, why would—just looking at a map, here, it seems to me that this is as close to places as, it's closer to Danbury, CT, for example, than it is to Huntington.

Dr. STERNGLASS. Oh, sure. In fact, I show——

Mr. ACKERMAN. Are the numbers, the numbers that we've seen would indicate that the incidences of breast cancer in Huntington are much higher than in Danbury, CT, for example.

Dr. STERNGLASS. Well, I'll show you—I'll come to it in a minute, if you'd allow me to do that.

Mr. ACKERMAN. Thank you.

Dr. STERNGLASS. OK? Just a few more minutes.

The rise in cancers around, which I presented to Congress at a congressional seminar in 1978, is a percent change in cancer mortality with distance from Millstone between 1970 and 1975, and you can see it decreased in every direction away from the plant, and therefore, fits the pattern of pollution produced in our diet and food by that particular plant.

Now, I want to show you——

Mr. ACKERMAN. That—that's the measurement of strontium-90? Is that what——

Dr. STERNGLASS. This was the cancer rate, the change of cancer rate, and it fits the pattern of strontium-90.

Now, I want to show you what we have recently published in a paper that came out this week in the International Journal of Health Services, which is part of my testimony, and you'll see this is the breast cancer incidence in Connecticut, where the plant is located, since 1935.

And, the important thing to note is, in the first years, between 1935 and 1945, there was no rise in breast cancer, despite all of the other factors present, such as ordinary pollutants and other factors, to some degree.

But then, beginning in 1945, it began to rise, and that was, again, similar to what we found in Japan and all over the world from the fallout. And then we see that after the plant in Haddam

Neck, CT, and Millstone, started, there were enormous peaks, further rises, which cannot be explained by pesticides, which went up and down and up and down. Pesticides would produce a steady increase.

In other words, we are now faced with the fact that this increased rate of releases almost doubled the amount of excess over what it should have been if these plants, which unfortunately were designed to allow these releases, incorporated data based on our earlier knowledge of Hiroshima.

Now, what is now the important factor that we have done that allows us to understand why this mistake was made? Hiroshima involved a short burst of radiation—a very intense one—and that turned out to be very much like a diagnostic x ray—short, therapeutic x rays, or diagnostic, are given in a matter of seconds or minutes. And, under these conditions, a different biological mechanism acts.

But if the mechanism of Dr. Petkau holds, then the curve should be not straight, between dose and response, but curved, and this shows you, for the case of all the nine regions of the United States, breast cancer mortality rates in 1984 and 1988, by region, versus cumulated per capita emissions of radioactive Iodine and strontium, as between 1970 and 1987, for 17 years. We have accumulated the releases and curies per million persons for each of these regions, and you can see that it is highly correlated and curves in this fashion, which indicates that the low-dose exposures are far more serious than we expected from the high doses at Hiroshima or the high intensities of therapeutic x rays or a series of diagnostic x rays.

In other words, what Rachel Carson had begun to suspect is now confirmed by this large study involving 200 million people in this country. It is not the kind of small study around one reactor that we have had in the past, but we now have data on 200 million people, and this is the pattern that we have here on Long Island.

And now, you see that the pattern in Nassau and Suffolk, showing rises, declines, and peaks. This parallels the peaks in Connecticut, right across, because the radioactive gasses are just 10, 20, and 30 miles away. In fact, from Chernobyl, they drifted all across the United States and, in fact, helped to increase cancer rates in the United States, to a certain degree, because of the enormous sensitivity of the free radical mechanism at very low doses.

And this, therefore, is the tragedy that I believe we can change, and I have made certain suggestions in my written testimony as to what should be done in research, now that the cold war is over. We owe it to our children and to our daughters to come, for generations, that somehow or other we face up to the mistakes that we made in the cold war, because national security dictated everything.

And, we must follow what Rachel Carson said, namely, that there's only one way, and that is prevention is everything.

[The prepared statement of Dr. Sternglass follows:]

STATEMENT OF
DR. ERNEST J. STERNGLASS, PROFESSOR EMERITUS OF RADIOLOGY
OF
THE UNIVERSITY OF PITTSBURGH SCHOOL OF MEDICINE
BEFORE THE
SUBCOMMITTEE ON HUMAN RESOURCES AND INTERGOVERNMENTAL RELATIONS OF THE COMMITTEE ON GOVERNMENT OPERATIONS
U. S. HOUSE OF REPRESENTATIVES

OCTOBER 30, 1993

Mr. Towns and distinguished members of the Committee:

Before I begin my testimony, I would like to thank you for inviting me to appear before you today to discuss my research on radioactive releases into the environment and their relationship to breast cancer, as well as the possible steps the National Cancer Institute and the Public Health Service can take to decrease exposures to avoidable carcinogens in the air, water, food and the workplace.

The fact that ionizing radiation causes cancer has long been known, and the National Cancer Institue as well as the Public Health Service and other government agencies such as the Department of Energy have carried out studies in this area and are continuing to do so at the present time, especially for workers in the medical field and the weapons production facilities where individual doses are relatively high and can be monitored for each individual.

However, very few studies of the effects of radioactivity released into the environment by nuclear testing or the releases from weapons production facilities and nuclear plants affecting the diet and drinking water of the general population were carried out by government agencies during the decades of nuclear testing. Such studies were opposed by the Department of Defense and the Atomic Energy Commission, now the Department of Energy, on the grounds that they could interfere with the nuclear weapons program and the generation of nuclear enrgy deemed essential for national security, as revealed in documents released under the Freedom of Information Act in 1979.

Moreover, as pointed out in a paper published by Shleien and co-workers in Health Physics in 1991, all of the past studies involving very low exposures of the general population such as occur from trace amounts in the drinking water and diet released by nuclear facilities have suffered from the serious limitation that there was no way to establish the form of the dose-response relation, or that the populations studied around each facility were so small that it was difficult to achieve a high degree of statistical certainty.

In addition, there has existed another problem that allowed the military and civilian nuclear establishment to maintain that such small amounts of radiation as experienced from natural and man-made sources released into the environment would not be detectable by any epidemiological studies. This was the fact that for the largest population group exposed to radiation and followed over a period of many years, namely the survivors of Hiroshima-Nagasaki, there appeared to be such a small risk per unit dose that on the basis of a linear extrapolation to the low doses encountered in the environment no detectable effects were to be expected.

As a result, even though about two-thirds of over 40 studies in the literature reviewed by Shleien and co-workers showed an increase in cancer rates in populations around nuclear facilities, government agencies and the nuclear industry were able to discount all the positive studies. Thus, the magnitude of the cancer risk to human populations from the low doses produced by environmental releases of radioactive chemicals has remained hard to relate to the amounts of activity in the diet, and therefore nearly as difficult to establish for the purposes of formulating public policy as for the case of non-radioactive chemicals such as pesticides. And since during the years of the Cold War, the fabrication and testing of nuclear wapons and the operation of nuclear reactors that was necessarily accompanied by radioactive releases into the enviroment were perceived by all the major powers as absolutely essential for national security, there was a powerful incentive not to want to believe the studies that did show adverse effects on human health.

Compounding the problem of believing the positive results was the fact that numerous studies of the effects of diagnostic X-rays on adult populations also had failed to find any adverse effects for doses down to a small fraction of the normal background received in the course of a year. In fact, the only studies that have shown a clear adverse effects of diagnostic X-rays on any human populations have been those involving the developing fetus and young infant pioneered by Dr. Alice Stewart in England beginning in the late 1950's and since confirmed by numerous other studies in part supported by the Public Health Service.

Also allowing the agencies involved with nuclear weapons production and reactor development to cast still further doubt on the positive studies around nuclear facilities was the fact that animal studies using necessarily relatively high doses of X-rays or radioactive gamma-ray sources that do not concentrate in any specific organ kept showing that dividing the radiation doses into a series of short exposures over a number of days or weeks appeared to reduce the effect on the development of cancers. This phenmenon is due to the ability of repair processes to take place and is used in radiation therapy to minimize damage to healthy tissue close to the cancer being irradiated. Thus, it appeared that environmental exposures that were spread out over days, months or years would be less serious than a single, short exposure to the same total dose.

Yet another reason why it was possible for those involved in weapons production and testing to dismiss all the positive findings of adverse health effects of fission products was the argument that there appeared to be no significant evidence that normal background radiation from radium in the rocks or from cosmic rays and naturally occurring potassium-40 had a detectable effect on cancer incidence or mortality.

What was not understood in the early years of the nuclear age was that man-made radioactive fision products such as strontium-90, strontium-89 and barium-140 emit very powerful electrons that can travel long distances through bone and reach the bone-marrow, unlike naturally occurring radium and radon that give off heavy alpha particles that can only move very small distances in bone and therefore do not affect the crucial immune system cells in the bone marrow to the same degree.

It now appears that we were grossly misled by the lack of readily detectable effects of background radiation, diagnostic x-rays given to adults, the beneficial results of radiation therapy, and the relatively low risk of cancer among the A-bomb suvivors. Instead, quite paradoxically, there is now enormously strong laboratory and epidemiological evidence that small, low dose-rate, chronic exposures from man-made radioactive chemicals in the diet and drinking water appear to be one hundred to one thousand times more effective in producing adverse health effects than the same dose from a short exposure, contrary to every expectation based on nearly a hundred years of medical experience, laboratory studies and the follow-up of the A-bomb survivors.

The reason is that in 1972, it was discovered that low dose, continuous exposures of the crucial cells in the bone-marrow as occurs in the case of the inhalation or ingestion of radioactive chemicals, produce their damage by a different and much more efficient biological mechanism than the short, intense exposures that occur in medical uses of radiation, or in the case of a brief flash from a nuclear bomb. This discovery was made by a radiobiologist by the name of Dr. Abram Petkau, working for the Canadian Atomic Energy Establishment laboratory in Pinawa, Manitoba. He found that cell-membranes were damaged at increasingly smaller total doses the more prolonged the exposures were, due to the production of a highly toxic form of oxygen in which a negative charge attaches itself to an ordinary oxygen molecule, producing a short-lived form called an oxygen free-radical.

At the low, protracted doses due to trace quantities of such materials as radioactive strontium in the diet that reaches bone together with the chemically similar calcium, nearly all the free-radical oxygen molecules produced can reach a cell-membrane, and just one of these toxic molecules can initiate a chain reaction that cause the cell to leak and die within a matter of minutes. But at the short, intense doses in diagnostic x-rays, so many free-radical oxygen molecules are formed in a given volume that they collide with each other and turn into harmless ordinary oxygen.

Thus, the smaller the dose per minute is, the more damaging it is to human cells per unit dose absorbed by the cells that require oxygen to live, and if these cells happen to be those of the immune system located in the bone marrow where radioactive strontium concentrates like the chemically similar calcium, then the body's ability to find and destroy cancer cells is impaired. Thus, any cancer cells existing in the body as a result of the action of ordinary background radiation or non-radioactive chemicals such as pesticides can multiply more quickly and move to other sites in the body, thus leading to an increase in both the number of tumor cells and the chance that death of theindividual will occur..

As a result of the greater efficiency of radiation in promoting tumor growth the lower the dose per minute is, the relation between the risk of developing cancer and the exposure to radiation is no longer a straight line as was assumed in the estimates for the risk of small exposures from the large doses received by the A-bomb survivors. Instead, it takes on a concave downward form that rises extremely rapidly for small doses and levels off sharply at high doses, thus accounting for a relatively low risk per unit of radiation deposited in tissue at high doses, and a one hundred to one thousand times greater risk per unit dose at very low doses. This is therefore the reason why the existing permissible doses or discharges from nuclear reactors that were set on the basis of a linear relation between dose and risk have so greatly underestimated the risk from trace amounts in the diet.

It is this laboratory result by Petkau that has now been found to hold for large human population groups exposed to the observed relatively small releases from civilian nuclear reactors across the United States, releases well within the permissible limits set on the basis of the high dose data as shown in a recently published paper enclosed as Appendix A. It explains one significant reason not previously examined why breast cancer has risen so much more in the North-Central and North-Eastern of the U.S. than in all other areas of the nation in the last two decades, since according to the official data on the releases of radioactivity into the atmosphere and water published by the Nuclear Regulatory

Commission (NRC), these regions have experienced the highest releases since the early 1970's, when the first large 1000 Megawatt nuclear plants went on line.

For these northern states the total amount of radioactive gases released per person is more than a hundred times that experienced in the Mountain states of the West, and the relation between the per capita releases in each of the nine census regions of the U.S. and the recent rate of breast cancer has exactly the kind of concave downward or logarithmic shape found by Petkau to hold for free-radical oxygen damage to cell-membranes. Since this curve is based on a total population of some 200 million people, it has enormous statistical significance, unlike all earlier studies based on one or two small rural counties where most reactors are located.

Moreover, it explains why densely populated New England and the Mid-Atlantic states of New York, New Jersey and Pennsylvania now have the highest breast cancer mortality, since the promoting action of the radioactive bone-seeking isotopes increases the carcinogenic effects of air-pollution, pesticides, estrogens, exogenous hormones, and diets for the urban poor deficient in vitamins that protect against free-radical damage.

Even further, it explains why Long Island has seen such a large increase in breast cancer between the early 70's and 1985-87, 40% for Suffolk closest to the Millstone Nuclear Plant, and 23% for Nassau much further to the west. Moreover, as shown in Figure 5 of the enclosed paper, the rises in Suffolk and Nassau that took place since the start of the Millstone Reactor near New London occurred in parallel with the two distinct rises in the incidence of breast cancer in Connecticut. above the expected rate of rise since the beginning of nuclear testing in 1945.

In fact, it is important to note that before fallout from nuclear weapons began, namely for the ten year period 1935 to 1945, there was no rise in breast cancer incidence in Connecticut, for which the data are available, despite the fact that the known or presently suspected risk factors existed then as they do now, including air-pollution, hair-dyes, cigarettes, alcohol and many forms of chemicals and pesticides. Only after fission products began to enter the diet and the drinking water did breast cancer incidence rates in Connecticut begin to rise, and only after the additional contamination of the diet by the releases from the large reactors began in 1968-70 did the rates rise more sharply still, doubling the number of cancer cases above that expected on the basis of the 1935-45 base-line.

The same absence of a rise in breast cancer existed in the years before 1945 in both New York City and the counties outside of the city, including Long Island, as can be seen in Figure 8 of Appendix A. Again, only after the onset of fallout did the New York City breast cancer rate rise, reaching its first peak in 1968-72, 6 to 10 years after the last of the large-scale atmospheric tests by the U.S., the U.K. and the U.S.S.R. in 1962. For the rest of New York State, despite an initial rise, breast cancer mortality actually declined during the 1950's to a rate below the 1940-45 level, reaching a minimum in 1959, despite the rise in the use of DDT and other pesticides and many other industrial chemicals whose production rose rapidly immediately after the end of World War II. However after the second large series of nuclear tests in 1961-62, the breast cancer mortality started to rise in the areas outside of New York City including Long Island as well, until by 1985, it actually exceeded the rate for New York City.

Since fallout came down all over New York State and thus contaminated the milk and food for every resident in the state including New York City, beginning in 1945, the question arises as to why the rest of the state including Long Island had a lower mortality rate than New York City until the 1980's. In fact, if herbicides, insecticides and lawn fertilizers were the principal causal factors or were acting synergistically with radioactivity, the rural areas outside of the city should have risen even more rapidly. The answer appears to lie in the difference in the sources of drinking water. New York City relied upon surface water stored in large reservoirs which are quickly contaminated by fallout, while most rural areas including Long Island rely upon well-water where the contamination takes much longer, to seep down, allowing the intense, short-lived radioactivity to decay. Thus, one would expect a delay to occur in the rise of breast cancer as the long-lived strontium-90 reaches the deep aquifers, and this is exactly what took place.

Furthermore, the less densely populated areas outside of New York City were chosen for the nuclear plants that began operating in the 1960's, in Upstate New York, New Jersey and Connecticut beginning with In dian Point near Peekskill in Westchester some 20 miles north of the city, so that the local diet and drinking water became increasingly contaminated with both short and long-lived radioactivity, explaining the sharp sudden rise for Westchester, Long Island and the rest of the state to levels exceeding those for heavily polluted New York City.

The conclusion that nuclear fallout from bomb tests and similar levels of man-made radioactivity released routinely from nuclear reactors is a previously unsuspected factor in the recent rise of breast and other cancers in the U.S. and other industrialized nations is supported by the fact that out of 16 such nations studied, all 12 that have commercial nuclear reactors have had recent increases in breast cancer, while the 4 that do not have experienced declining rates.

This conclusion is further supported by the well-known fact that countries with diets high in fat such as contained in milk, dairy products and meat have high breast cancer rates today, yet the most recent large-scale epidemiological studies that measured fat in the diet of American women found no relation to the amount of fat consumed.

The reason is that red meat, dairy products and especially milk rapidly transmit short-lived radioactivity from the rural areas near nuclear plants to the human diet just as surface water supplies do. Thus, it appears that it is the small trace amounts of radioactivity, in the milk , dairy products, and red meat of western diets, probably in conjunction with herbicides, pesticides and exogenous hormones that concentrate in fatty tissue, whch promote cancer cell proliferation. The bone-seeking radioactive chemicals irradiate the immune cells in the bone-marrow, lowering the ability of the body to destroy the cancer cells, while other isotopes such as those of iodine, irradiate the breast tissue. In both cases the effects are some onehundred to one thousand times greater than expected from our knowledge of the action of external sources of radiation in short, intense exposures because it is the production of free-radicals that dominates at the low dose-rates due to trace amounts in the dietand drinking water.

The question now is what should be done to reverse the rising tide of cancer and other health effects from man-made substances affecting the immune defenses of the human body and thus threatening the physical and financial health of our nation?

Now that the puzzle of the widely divergent estimates of the dose needed to produce a certain increase in the cancer rates is solved by the difference in the efficiency of free-radicals at low and high dose-rates, all the past studies that appeared to give such conflicting results fall into place. Thus, the primary concern must now be to reduce the releases of man-made radioactivity as much as possible in the shortest possible time. From the sharp declines following equally sharp rises in the incidence of breast cancer seen for Connecticut that are highly correlated with the rises and declines of emissions from the Millstone nuclear plant it is clear that cancer rates could be brought down rapidly to what they were before the nuclear age began. Thus, every possible effort must be made to either drastically reduce the releases by technical means such as vastly improved filtration, or, if this turns out to be too costly, to replace the nuclear steam production system with a natural gas boiler, now that ample supplies of natural gas have become available in he North-East, hardest hit by the cancer epidemic.

Fortunately, the existing overcapacity of electric generating stations in the U.S. and their interconnection make it possible to accomplish this with no danger to the electricity supply. In the long run, all nuclear reactors should be replaced by more benign ways to generate electricity, such as solar, wind, ocean - thermal, geothermal and other forms of energy generation and by more efficient uses of energy in homes and factories that involve no emissions of any kind. Fortunately, oil and coal can be burned with much lower emission of sulphur dioxide than in the past, so that these sources can continue to be part of the electrical energy supply while alternative sources and increasing efficiency make the use of oil and gas for electric power generation unnecessary.

We are also fortunate in that we can continue to use diagnostic and therapeutic radiation in medicine because it does not involve extremely low dose-rates and chemical concentration in critical organs, provided that we make continuing efforts to minimize unnecessary exposures and improve the education of both physicians and technicians in the use of radiation. The existence of a logarithmic dose response indicates that millirad for millirad, diagnostic exposures are some one thousand times less biological damaging than the same dose from strontium-90. Nevertheless, if at all possible, a system for keeping records of medical exposures should be instituted using recently developed computer technology, so that both physicians and patients can know the doses they have received.

We can further institute a system for a more timely reporting of radioactive releases from the existing nuclear facilities so that individuals have the opportunity to take simple precautions to minimize their impact on their health such as using bottled or distilled water for drinking and cooking, or using powdered milk or non-dairy milk substitutes to minimize the short-lived activity, especially in the event of unanticipated releases. while nuclear reactors are phased out.

We should end the present practice of shipping milk from counties around nuclear reactors out of state to metropolitan areas on the theory that dilution reduces the effect of a given degree of contamination. The evidence for a concave downward or logarithmic dose-response means that instead of decreasing the impact of a given release, it actually increases the total societal impact since the decreased concentration achieved by dilution is counteracted by the greater risk per unit dose as dilution takes place. This helps to explain why in recent years, both cancer rates and such reproductive effects as low birth weight have risen most rapidly in cities like Washington, DC, whose milk comes entirely from other areas that have large nuclear facilities, and where the state health departments encourage shipment out of their own states in order to protect their own citizens.

We should end as soon as possible using surface waters for drinking purposes that are located within thirty to fifty miles of an operating nuclear plant because the short-lived isotopes can reach the consumer within a matter of hours or days. If this turns out to be unfeasible, such reactors should be the first to be replaced by oil or gas fueled steam generation systems. In the meantime, distilled or de-ionized bottled water could be made available to everyone at low cost, particularly the poor whose diets generally lack sufficient vitamins that protect against free-radicals. Such subsidies for the poor could be very cost-effective in preventing cancer and low birth weight that have been driving up

In the area of research, since the diet will continue to be contaminated by long-lived radioactive and organic pesticides even after nuclear reactors have been phased out, the greatest need is for studies of the free-radicals and methods to deactivate them in the human body by means of dismutase enzymes and anti-oxidants since both radioactive and chemical carcinogens act via the production of these highly toxic molecules. Such research is also likely to benefit other areas of concern, such as the ageing process and the causes of heart disease and other chronic conditions now known to involve the action of free-radicals.

Other research should be directed towards the role of very low dose radiation produced free-radicals in their action on the immune system of women during pregnancy that can lead to rejection of the fetus as a foreign object. Low birth weight is at present one of the most serious problems in the U.S. and other industrial nations, and as the attached article points out in a note added in proof, low birhweight rises and declines have recently been found to be correlated with rises and declines in nuclear plant emissions.

Research funding for DOE should be directed towards ways of reducing radioactive emissions from existing nuclear reactors and waste-treatment facililities by at least 100 times below the present average annual emissions and ways to replace nuclear steam-generating systems as rapidly as possible by oil and gas fueled systems.

The Nuclear Regulatory Commission should be required to hold public hearings on the need to reduce the permissible discharges from all nuclear facilities, taking account of all the latest findings relating to the importance of the free-radical production at various dose-rates. Moreover, Congress should require that not only genetic effects, cancer, and cataracts be regarded as radiation related, but all chronic and infectious diseases now known to be affected by the production of free-radicals.

In conclusion, now that the Cold War is over and the nuclear deterrent is no longer needed, the nation must at long last address the health problems that the nuclear arms race created or face a continuing escalation in the cancer rate, the rate of underweight births, and the enormous costs connected with the efforts to cure or mitigate these problems rather than to prevent them. As Rachel Carson said so prophetically thirty years ago in her ground-breakng book "Silent Spring" , " An attack on cancer that is concentrated wholly or even largely on therapeutic measures(even assuming a "cure" could be found in Dr. Hueper's opinion [who headed the National Cancer Institute at that time]) will fail because it leaves untouched the great reservoirs of carcinogenic agents which could continue to claim new victims faster than the as yet elusive "cure" could allay the disease".

And equally prescient was her recognition of the danger of low dose chronic exposure to radioactivie and ordinary chemicals:

"The most determined effort should be made to eliminate these carcinogens that now contaminate our food, or water supplies, and our atmosphere, because these provide the most dangerous type of contact - minute exposures, repeated over and over throughout the years". In her final words, "prevention is the imperative need."

Mr. TOWNS. Right.

Thank you very much, Dr. Sternglass, and let me thank you, too, Dr. Davis.

I do not have any questions. I just want to thank both of you for your outstanding testimony. I think that it was very informative, and of course as I pointed out, we have a lot of work to do. At this time, I would like to yield to Congressman Ackerman.

Mr. ACKERMAN. Thank you very much, Mr. Chairman.

As you so ably point out, the testimony, indeed, from this panel has been superb and enlightening.

Let me ask Dr. Sternglass a question first.

These parallels between the nuclear emissions and breast cancer, have there been similar parallels or studies made with other forms of cancer, or is this strictly breast cancer?

Dr. STERNGLASS. No. As a matter of fact, we only concentrated on breast cancer because it has the greatest incidence rate and rose most rapidly today. But, in testimony that I gave last May before the Veterans Affairs Committee of the House—and you can get hold of the testimony or I'll be glad to send you a copy—I showed that almost all forms of cancer have been rising through the 1980's, and especially all female cancers combined, prostate cancer for men——

Mr. ACKERMAN. That—that's not my question. We know that all forms of cancer have been rising through the 1980's——

Dr. STERNGLASS. Right.

Mr. ACKERMAN [continuing]. But, indeed, they've been rising all over for——

Dr. STERNGLASS. Oh, yes.

Mr. ACKERMAN [continuing]. In other areas, as well.

Dr. STERNGLASS. I'm sorry. I misunderstood.

Mr. ACKERMAN. I'm interested in the direct correlation——

Dr. STERNGLASS. Yes, yes. The answer is that there are about 20 to 25 studies, around various nuclear facilities, including the test site, and many, many have——

Mr. ACKERMAN. Has—has a study been done on this Millstone facility in Connecticut?

Dr. STERNGLASS. I had a previous study that I submitted to Congress in 1978. I'll be glad to give you a copy of that, but it showed all types of cancers rising to some degree. Breast cancer was among the ones that rose more strongly.

Mr. ACKERMAN. But was it the same pattern?

Dr. STERNGLASS. The pattern? Yes. Geographically the same pattern.

Dr. DAVIS. May I comment?

Mr. ACKERMAN. Please.

Dr. DAVIS. I just would like to comment. I have not previously seen Dr. Sternglass's paper, and I know he did some very important work in alerting the world to the dangers of diagnostic radiation, certainly prenatal obstetrical x rays and things of that sort that have been well acknowledged. And, frankly, I'm not in a position to comment in detail.

But one of the problems we face with this kind of analysis is that because it's so big and comparing such large units, there are a lot of other things that might explain it. And so, for example, my question to you is this might also track with per capita income. It might be, it could track with other variables that might be important, and we need to be very careful in looking at these kinds of data, and not be jumping to these conclusions. Because, in epidemiological studies, we have basically two types of studies that we can give you: We can give you the big picture, which this is, from which it's hard to draw any real conclusion; or, we can give you very detailed studies, such as Dr. Blair is going to talk to you about, where you take people who've been known to be exposed to something, and you compare them to people who are not known to be exposed, very, very carefully, and you look and see what the differences are.

And we need those kinds of studies, as well, and I think you would agree——

Dr. STERNGLASS. Sure.

Dr. DAVIS [continuing]. That this is, at this point, speculation, but it's very important that we follow it up.

Mr. ACKERMAN. That's the point—thank you, very much, doctor—that I was driving at, as well, whether or not your evidence, which apparently is a very important piece of scientific research that has been rather well received. And to those of us who are neither scientists or researchers—although we do have engineers—have made quite an impression. It does not necessarily rule out other possible causes.

You know, some of us——

Dr. STERNGLASS. Absolutely. Let me——

Mr. ACKERMAN [continuing]. Some of us——

Dr. STERNGLASS [continuing]. Explain that.

Mr. ACKERMAN [continuing]. Some of us know the researcher who took a flea——

Dr. STERNGLASS. OK.

Mr. ACKERMAN [continuing]. And he experimented—you know about this guy?

Dr. STERNGLASS. Absolutely. I spent my——

Mr. ACKERMAN. He ripped a wing off of the flea and he said, "Flea, fly," and the thing had a little bit of trouble, and it finally flew. And then he ripped the other wing off, and he said, "Flea, fly," and the thing couldn't move. And he drew the conclusion that, you know, when you rip the wings off a fly, they tend to become deaf. [Laughter.]

Dr. STERNGLASS. Yes, I think all kinds of——

Mr. ACKERMAN. You know, this is—it may be true, but there may be other factors——

Dr. STERNGLASS. Right, that's——

Mr. ACKERMAN [continuing]. Involved——

Dr. STERNGLASS [continuing]. Absolutely——

Mr. ACKERMAN [continuing]. Such as the environment.

Let me ask you—let me ask you this question: Your research and the conclusions therefrom, in that this parallel, this pattern resulting from the emission of strontium-90 into the atmosphere, and the direct correlation and parallels with the increase in incidence of breast cancer over a period of time, have, does not explain, at least in my mind, and maybe you can clarify it, maybe you can't, why is there, despite the fact that breast cancer is on the increase in all of these areas, and maybe measurably so, equidistant places—

and I don't know that you've said that, yet—from, from the particular site, but why is it in the higher, even though it's increasing all over, why is it higher on Long Island, in certain areas, and, indeed, that would lead my not-necessarily scientific mind to conclude that there, perhaps, are other factors in addition to, as well as possibly instead of?

Dr. STERNGLASS. I'm glad you brought this out, because there is, in fact, detailed information in one of the reports by the New York State Health Department on the distribution of incidents of breast cancer along the shore of the Long Island Sound, going toward Suffolk.

It turns out that the closer you get to the location of the plant, on the North Shore, from the border—all the way from Nassau, to the border, you get, in fact, a greater number of cases per woman——

Mr. ACKERMAN. Well, let me—let me——

Dr. STERNGLASS [continuing]. Of 20 to 70 years old.

Mr. ACKERMAN [continuing]. Let me—let me ask you this, because a number of us have a particular interest in that, because our districts are construed throughout that area. My district is along that North Shore——

Dr. STERNGLASS. Yes.

Mr. ACKERMAN [continuing]. But as, as you go from the plant in Connecticut, to different places on the North Shore, you're going different distances. Indeed, as you go across Long Island, not necessarily on the shoreline, but as you cross the land to go South in some places—in Mr. Hochbrueckner's district or Congressman Lazio's district, which may be closer in, are those spots just as hot as on the shoreline?

Dr. STERNGLASS. No. We find that the greatest number of cases found for women of 20 to 70 was on Shelter Island, and along the shore, it decreased with distance away by a factor of about four-to five-fold, so that these are not small differences. And these numbers and these statistics were gathered by the State health department. And this does——

Mr. ACKERMAN. You're saying—you're saying along the shoreline, it's a—it's a higher risk?

Dr. STERNGLASS. Along the shoreline, going toward the tip of Long Island, where Shelter Island is located.

Mr. ACKERMAN. Well, the plant is closest to the East of Long Island——

Dr. STERNGLASS. That's it, that's the point.

Mr. ACKERMAN [continuing]. And it's right about north of Orient Point, as I understand it.

Dr. STERNGLASS. Exactly. It's right across from the end of Long Island, near New Haven.

Mr. ACKERMAN. But closer, places at a closer distance—Mr. Chairman, I just beg your indulgence, because I think this is important for us to try to figure out what's going on here—closer to the plant, even though it's on Long Island, if there is more land in between, rather than along the shore, there is a greater risk?

Dr. STERNGLASS. No. It has to do with the distance away from the plant, more than anything else, and I have a, a graph that was, in fact, produced by a——

Mr. ACKERMAN. Because, I thought, I thought you said along the shoreline was the most——

Dr. STERNGLASS. The point being, the Millstone Plant, as you can see, is right across from the tip of Long Island, and Southhold and Shelter Island are closest, and then Smithtown has less of a rate, and Huntington, it actually declined during that period.

And this data was gathered by the Eastern Long Island, by the Suffolk County Health Department and published in the Suffolk County News on September 21, 1978.

And now, it has been found, again, that the further you get out to the tip of, closest to New London, that's where the greatest increases in breast cancer have taken place. In that period, 77 percent on Shelter Island, and that's only some 12 to 14 miles away from the plant.

Anyway, it is important to keep following this up. I'm not saying that, No. 1, that this is the only cause. No, what I'm saying is that this action of the radioactivity probably acts to promote the other carcinogens, because it acts on the immune defenses and acts on, via the production of free radicals, which are also produced by pesticides.

Mr. ACKERMAN. OK, help me to understand one thing real quick, if you can.

Cancer rates per thousand——

Dr. STERNGLASS. Right.

Mr. ACKERMAN [continuing]. On Long Island, higher or lower than in Danbury and New London?

Dr. STERNGLASS. I can't give you that answer right away, because I don't have the figures in front of me. But, I do know that the recent rises have been greatest in Suffolk and less so in Nassau, a greater distance away.

Mr. ACKERMAN. Which is interesting because those other places are closer——

Dr. STERNGLASS. No, I, I——

Mr. ACKERMAN [continuing]. Than places on Long Island.

Dr. STERNGLASS [continuing]. I just haven't looked at the latest data on Connecticut.

Mr. ACKERMAN. Well, you haven't looked at the latest, but we have to look at the latest, if we're the people, if, if we're to draw conclusions——

Dr. STERNGLASS. All these things——

Mr. ACKERMAN [continuing]. From what you're saying——

Dr. STERNGLASS [continuing]. It would be——

Mr. ACKERMAN [continuing]. And we look at the fact that everything you're saying may be true, but the fact yet remains that the problem on Long Island is growing, and growing faster than those places closer to the Millstone Nuclear Plant in Connecticut.

Dr. STERNGLASS. Well, I haven't—all I know is——

Mr. ACKERMAN. Well, that, that's key to coming to a conclusion, I think.

Dr. STERNGLASS. Sure. We'll have to answer that and I'll have to look at the latest data in Connecticut.

But, we have found the same thing in the case of Westchester and New York City, which is in this report——

Mr. ACKERMAN. Yet——

Dr. STERNGLASS [continuing]. Where we find that Westchester and New York City had the same breast cancer rate until the middle 1970's, and then Westchester went up and New York City went down, and we were able to find that one factor is the fact that the water supply for New York City was switched away from the Croton Reservoir to the more distant reservoirs in the Catskill Mountains.

Mr. ACKERMAN. Yes, but other things took place, too, such as earlier chlorination or later chlorination, and, I mean, there are so many factors here.

Dr. STERNGLASS. Right. It's always a possibility, but when you find 25 or 30 studies now in the literature that have found significant association and now we can see that it is no longer in conflict with the data on Hiroshima, which gave a very low risk per rad, and now we find that the chronic, small doses are more sensitive, we can now see that there is no conflict between these different results.

Mr. ACKERMAN. Thank you very much, doctor.

Mr. TOWNS. Thank you, very much, Congressman Ackerman.

Congressman Rick Lazio.

Mr. LAZIO. Just one question, for Dr. Davis, if I could.

I'm wondering if you could speak a little bit to the connection between pesticides or other compounds that mimic estrogen and how that may impact on an area typical of Long Island, on the rates that we have.

Dr. DAVIS. I think that we have a lot of work to do, in the scientific world right now, and the answer is that breast cancer is a disease with multiple causes.

We know that a number of chemicals—some pesticides, some plastics, some fuels, and some natural plant materials, all increase estrogen. We know that, because we have done studies in whole animals and in cell cultures, exposing them to these materials and seeing that they increased the rate of cell growth, increased the development of estrogen. That work has been done.

Finding out its relative contribution to breast cancer in any given region is going to be very hard. We do know, from the Newsday investigation, that the application of pesticides on Long Island, in the 1940's and 1950's, was hundreds of times higher than would have been permitted today, with some pesticides that have been shown to be estrogenic. We know that.

We also know, from work that EPA did, ground water modeling simulations, that because of the nature of the aquifers on Long Island which, in some places, are close to ground level, that the contamination did occur there, and we know from the New York State Health Department that they did not monitor for these things until very, very recently.

Those are the things that we do know.

We don't have good biologic markers except for exposures to long lived, persistent organochlorine compounds. Those are the things, you can take someone's blood and you can measure how much organochlorine you think they were exposed to. We don't have a good tool for measuring how much fuels they were exposed to, engine exhausts they were exposed to, or whether they took certain drugs. We don't have a good biologic marker for exposure to radiation, for example. That's one of the problems with the ideas that Dr. Sternglass is developing. So, we need to do a better job of estimating, through questionnaires and reconstructing historically what those exposures were.

At this point, I'd say we have a lot of work to do, scientifically, but certainly the Newsday investigation opened my eyes to a lot of the possibilities that we have to explore here, with respect to the particular patterns on Long Island.

Don't forget that throughout this country, overall, there was an incredible increase in the use of a lot of household materials in the 1960's, that were not generally available; and knowing whether there's something special about Long Island or not is going to take some time to sort that out.

We, as the scientists, have to ask for your patience. We want to do the right job, and as Senator D'Amato said, we want to do it right, as well; and that's not going to be easy, because a lot of these things are very hard to do.

You have the tougher job, I might say, which is what do we do for public policy in the meantime? And I think that the EPA Administrator and the new Assistant Administrator for Toxics and Pesticides, have declared their intent to develop policies of pesticide reduction and toxic chemical reduction and pollution prevention, and I think those sound like good things to do while we scientists continue to get you more information.

Mr. LAZIO. Let me just ask this one other question, also, on behalf of, perhaps, some of the women in this room who have worked very hard in trying to accumulate data that would establish some type of pattern.

What type of advice would you give them about how they can be productive in establishing a predicate for any kind of initiative?

Dr. DAVIS. Well, they have been enormously productive, already, and if it weren't for them and their energy and their commitment to this issue, we all probably wouldn't be here, right now, today. [Applause].

But the dilemma that emerges is any time a person who is, herself, involved in an issue tries to study that issue, it becomes very difficult to get "objective" data. I understand, full well, why they generated these maps and developed these analyses, because no one else was going to do it for them.

We now have the problem that they need to be independently assessed and that, with respect to questionnaires and all those activities in epidemiology, the best data are those that have been collected independently, by what we call a "double-blind" technique, where the person collecting the information and the person analyzing the data are not aware of whether or not the person has or does not have breast cancer. And so, that makes it very difficult for us to use some of the information that the citizens have developed.

But, I welcome their energy and commitment to this issue, because I think without it, we wouldn't be here and I think we, in the scientific community, have to do a better job.

And, I'm hoping, 2 weeks from now, when we have the activity at Adelphi University—where we are convening a meeting of experts on breast cancer to develop research strategies for what to do on Long Island—when we have that meeting that's been organized by 1 in 9 and the Adelphi University group, I think we will make further progress in helping to come up with studies that need to be done.

In the meantime, I want to add one—one piece of advice: Even if you have breast cancer, and I know many people in this room do, it is important to eat a diet that is relatively low in fat and high in fruits and fibers. A recent study published in the Journal of the National Cancer Institute, found that women with breast cancer who consume diets relatively low in fat have a lower rate of reoccurrence of the disease.

So, it's not as though this is a death sentence. We all know that it's not. I mean, we know there are things you can do even with respect to radiation exposure——

Dr. STERNGLASS. Absolutely, vitamins and——

Dr. DAVIS [continuing]. That exposure, eating a diet that is high in the antioxidants will be very beneficial, even for the damage of radiation.

Dr. STERNGLASS. Absolutely.

Dr. DAVIS. So, we need to let people know that.

Mr. LAZIO. Thank you very much.

Mr. TOWNS. Thank you.

Let me—Congressman Hochbrueckner.

Mr. HOCHBRUECKNER. Yes. Thank you, Mr. Chairman.

Dr. Sternglass, certainly your testimony seems to be totally geared to nuclear radiation, as your area of interest.

Dr. STERNGLASS. Right.

Mr. HOCHBRUECKNER. Let me ask this: I can accept that nuclear radiation is a factor among many factors.

Dr. STERNGLASS. Right. I would, too.

Mr. HOCHBRUECKNER. And, obviously, that's why, you can't do a direct relationship and say, well, the closer you are to Millstone, therefore—because there could be a lot of other factors——

Dr. STERNGLASS. Right.

Mr. HOCHBRUECKNER [continuing]. And perhaps the nuclear view is only 10 percent of the works. Who knows? Only a major study will show that. But, it seems to me, we have 110 operating nuclear plants in the United States today. We've had some situations where we have some, had some known releases, like Three Mile Island——

Dr. STERNGLASS. Right.

Mr. HOCHBRUECKNER. Have you had the opportunity to do any studies with regard to areas where there have been known releases, to get a better angle on what——

Dr. STERNGLASS. Yes.

Mr. HOCHBRUECKNER [continuing]. You know, what impact it has?

Plus, also, countries like France and Japan, where they have a large number of nuclear plants, is there any additional evidence that supports your view?

Dr. STERNGLASS. Actually, the most, the strongest evidence is now coming from Chernobyl. I just attended two international conferences—one last September and, just now, in June, in Norway—where the people from the area and government physicians reported striking rises in thyroid cancers among children, published in Nature last September, from 2 cases per year in Byelorussia to about 30, 40, within a matter of 4 or 5 years, which we've never seen for x-ray radiation to the thymus, which often takes 10, 15 years to develop. We have, therefore, from the Chernobyl evidence right now, much more of an indication that the immune system is, for instance, a great target of radioactive emissions.

And, with regard to specific other reactors, where known releases have taken place, the answer is, I have looked at Three Mile Island, and we did find an increase in the number of infants who died in the summer until the following January. And, we have seen rises in cancer within a large area, down wind, because it drifted all the way across New England, all the way to England and Germany.

So, we have now many, many studies, not just by myself, all of which indicate that we did underestimate the effects of the chronic radiation and probably in combination with many other factors. That's why, in a given area, where fallout comes down, more people will develop cancer, who have a genetic predisposition for it. More people in that area will develop a cancer if they had certain other factors, like possibly pesticides and other things.

So, yes, there are multiple factors, but the overall rise and decline and all the patterns around the various nuclear facilities that are now highly documented, they cannot by themselves be explained by pesticides alone, or by hair dyes alone, or by cigarette smoking alone. That's the point I'm trying to make. We're dealing with a multifactorial situation that is very important to recognize.

Mr. HOCHBRUECKNER. And one final question, Mr. Chairman.

Dr. Sternglass, in your testimony, on page 7, you state,

> research funding for the Department of Energy should be directed towards ways of reducing radioactive emissions from existing nuclear reactors and waste-treatment facilities by at least 100 times below the present average annual emissions . . .

Dr. STERNGLASS. Yes.

Mr. HOCHBRUECKNER [continuing]. And then, you go on to say we should go more into gas and oil.

Dr. STERNGLASS. Right.

Mr. HOCHBRUECKNER. Where did the number 100 come from?

Dr. STERNGLASS. Well, it comes——

Mr. HOCHBRUECKNER. Is that just your gut feel or is that a scientifically based number?

Dr. STERNGLASS. It comes from this plot that I showed you, because, for the areas of the country that had the smallest per capita emissions, the emissions were, roughly, per capita, 100 times lower than for those that were the highest.

And, in fact, the slope of the curve, which is measurable not only here but in other studies, indicates that the dose required to, say, increase the cancer rate by a given amount is 100 to 1,000 times greater, at very, very small doses, than at the high doses experienced at Hiroshima-Nagasaki.

And, since our present standards are based on the survivors of Hiroshima-Nagasaki, we have to come down to the region where we deal with a tiny trace amount of radioactivity which we find in the diet, not the large exposures that workers get in the industry or the firemen at Chernobyl who died. All those people received very large doses, and that factor is between 100 and 1,000-fold.

And, that's why, in fact, I did call for hearings back in 1973. I called for a reduction in the emissions by a factor of 100, but at that time, it was argued that it was too expensive to do.

Mr. HOCHBRUECKNER. So, your point is that low levels of emission for long periods is a lot worse than a large burst for a short period.

Dr. STERNGLASS. Well, of the same dose for a short period, right. That's exactly. That's why we can continue to use medical x rays, mammography—and I don't want to discourage people from doing that, because they are short bursts and involve an entirely different mechanism with a lot lower risk. And that, in fact, has misled us, compared to the low—right, compared to the very low chronic exposures.

Dr. DAVIS. You might mention that in the old days, they were much higher.

Mr. HOCHBRUECKNER. How would you rate——

Dr. STERNGLASS. Oh, in the old days—let me explain one other thing.

Mammograms, which I'm very familiar with, because I've been developing equipment to reduce the dose over the years, in various diagnostic procedures, at the University of Pittsburgh. In the early years, some mammograms gave 2,000 to 10,000 millirems per film. Today, it's possible to go down to 100 to 200, and we can see future possibility of going down another factor of 2, 3, or 4. So that we have come a long way in reducing the doses from diagnostic x rays, and we have to keep on working in that direction. And that, by the way, should be supported, also, by the National Cancer Institute and the Public Health Service.

Mr. HOCHBRUECKNER. Thank you, Mr. Chairman.

Mr. TOWNS. Thank you.

Let me thank you, Dr. Sternglass, and Dr. Davis, for your testimony. I think you also highlighted that we have a lot of work to do, and that we're a long way from having some real answers here in a lot of these areas.

So, thank you, again, for your testimony. [Applause].

Let me call to the witness table Dr. Aaron Blair, chief of occupational studies at the National Cancer Institute; Dr. Christopher Schonwalder, Assistant to the Director of the National Institute of Environmental Health Sciences.

If you would be kind enough to please summarize your testimony within 5 minutes. This will provide time for the members to ask questions. As you can see, we have some members here who are full of questions, because there are so many questions that have yet to be answered.

This is such an important subject, and we wish we had more time to be able to go into it. But I think that we will be able to cover a little more by having a summary from you and then spending the majority of time on questions and answers.

And let me just indicate to you that your entire statement will be included in the record, and we will even leave the record open for additional input.

STATEMENT OF AARON BLAIR, Ph.D., CHIEF, OCCUPATIONAL STUDIES SECTION, ENVIRONMENTAL EPIDEMIOLOGY BRANCH, EPIDEMIOLOGY AND BIOSTATISTICS PROGRAM, DIVISION OF CANCER ETIOLOGY, NATIONAL CANCER INSTITUTE, NATIONAL INSTITUTES OF HEALTH, DEPARTMENT OF HEALTH AND HUMAN SERVICES, ACCOMPANIED BY DR. SUSAN SIEBER, DEPUTY DIRECTOR

Dr. BLAIR. Thank you, Mr. Chairman.

I am Dr. Aaron Blair, Chief of the Occupational Studies Section in the Division of Cancer Etiology at the National Cancer Institute; and Dr. Susan Sieber, who is Deputy Director of our division is accompanying me, and we're pleased to appear before you to discuss efforts by the National Cancer Institute to identify environmental and occupational causes of cancer.

As has been said by others, approximately 1 million new cancers are diagnosed in this country each year, and about a half a million deaths. And, I can assure you those of us at the Cancer Institute are as interested as you are and members of the audience in trying to determine the causes of this, of these incidences, so preventive activities can be taken.

The Cancer Institute conducts a comprehensive laboratory and epidemiologic effort on potential occupational and environmental hazards. This began in the 1960's with studies of steel and smelter workers and metal and uranium miners, which demonstrated that arsenic and radon cause lung cancer. And, since then, occupational and environmental factors have remained an important component of the effort by the National Cancer Institute.

And, I should mention that we're not pursuing our investigations in a vacuum or in isolation, but we collaborate with many other Federal agencies to conduct these complex and difficult studies. For example, in collaboration with NIEHS, the two agencies have awarded six grants to study breast cancer in the Northeast, of which the Long Island study is one which has been mentioned several times before. In fact, just a couple of weeks ago, there was a meeting with the principal investigators of those grants, to design, to get the projects underway as quickly as possible. I'd like to just mention, also, that in the occupational arena, we have many collaborations with a sister agency, the National Institute of Occupational Safety and Health, which also conducts a lot of research on occupational causes of many diseases, including cancer.

The occupational and environmental research at the Cancer Institute is very broad based. We look at a wide variety of substances—pesticides, solvents, benzene and other chemicals, electromagnetic fields, indoor air pollution, radon, metals, hair dyes, drinking water contaminants, and so forth.

Today, I want to just briefly, give you a brief overview of pesticides. Of course, I'd be happy to answer any questions you might have about any of the other environmental exposures also. The public health concerns regarding pesticides have existed for many decades, and the NCI epidemiologic program on pesticides has tended to focus on groups of applicators, because they have very high exposures, and it gives us a better opportunity to evaluate cancer risk. Surveys of farmers that we've conducted have been especially informative.

We find that, actually, although farmers have a very favorable overall mortality experience, they tend to have higher mortality from several different tumors, including non-Hodgkin's lymphoma, Hodgkin's disease, leukemia, and cancers of the lips, skin, stomach, brain, and prostate. And, we have been, over the years, trying to determine what factors in the agricultural environment, what particular factors, might account for these excesses of cancers.

Probably the most striking finding is that we have found that 2,4-D, a rather widely used herbicide, is associated with elevated risk of non-Hodgkin's lymphoma. In fact, the more often farmers use it, the greater the risk. We've also found, from our studies, that risk of leukemia and non-Hodgkin's lymphoma are associated with the use of several different insecticides, and in one study in Nebraska, we found that women who applied insecticides had the same risk for non-Hodgkin's lymphoma as men; in fact, just a little bit higher than what men did.

We continue to try to look at pesticides in a variety of ways. One sort of a major effort that we've just recently undertaken is our agricultural health study. Now, this study is being conducted in collaboration with the National Institute of Environmental Health Sciences, my colleague on my left here, and the Environmental Protection Agency. The project is designed to run for 10 years or more, and it will enroll over 100,000 adults and the children of farm families who are engaged in pesticide application in Iowa and North Carolina. We will follow these individuals for a very long period of time, to assess cancer risk and other chronic diseases associated with agricultural factors, environment, and lifestyle factors. This is a natural extension of the effort by the NCI which should provide a lot of information in the future.

Now, one issue on women that I would like to mention, that we are following up on some issues of breast cancer and DDT, from studies that were released in the last year by Dr. Mary Wolff and others, and we're trying to identify populations that have very high levels of DDT exposure, and we have several where we think we can do that.

I would like to mention one other project looking at occupational cancer in women, that we will be, we will be doing in the next couple of days. Monday and Tuesday of next week, we have organized, along with several other agencies—the National Institute of Environmental Health Sciences, the NIH Office of Women's Research, and the National Institute of Occupational Safety and Health—to look at the issue of occupational causes of cancer among women. There is an international conference on Monday and Tuesday of next week, in Baltimore, and I brought along several copies of the program and the abstracts for that, for the members of the subcommittee, if you would like to see them.

I would just like to close by saying that we are very concerned about occupational and environmental causes of cancer. We try to conduct a broad-based research program to identify these factors, so that we can prevent cancer among our citizens, and we try to reach out to the public, to share our information with them, wherever we can. If we're not doing as well as we can, we'd look to do it better.

I just met with members of our Office of Cancer Communications this past week, probably a lot from instigation from your subcommittee, Mr. Chairman, to try to see how we can do a better job of sharing the information with the public. We want to do that. That is our goal. I can assure you that we are working as hard as we can to do the best job possible.

Thank you.

[The prepared statement of Dr. Blair follows:]

Release Upon Delivery

STATEMENT
OF
AARON BLAIR, PH.D.

Occupational Studies Section
Environmental Epidemiology Branch
Epidemiology and Biostatistics Program
Division of Cancer Etiology
National Cancer Institute
National Institutes of Health
Department of Health and Human Services

BEFORE
THE

SUBCOMMITTEE ON HUMAN RESOURCES
AND INTERGOVERNMENTAL RELATIONS

U.S. HOUSE OF REPRESENTATIVES

OCTOBER 30, 1993

Statement of Dr. Aaron Blair
National Cancer Institute

Good afternoon, Mr. Chairman. I am Dr. Aaron Blair, Chief of the Occupational Studies Section of the Division of Cancer Etiology (DCE) at the National Cancer Institute (NCI), National Institutes of Health (NIH). Accompanying me today is Dr. Susan Sieber, Deputy Director of the DCE. We are pleased to appear before you to review ongoing NCI efforts to identify occupational and environmental causes of cancer. NCI is supporting many studies to further delineate the role of numerous factors, including environmental and occupational exposures, in cancer.

STATISTICS

In 1993, over 1 million new cases of cancer will be diagnosed in the United States and about 526,000 people will die of the disease. Among children under age 15, cancer is the leading cause of disease-related death. However, since cancer incidence increases with age most cases occur in adults at mid-life or older. There has been a steady rise in the cancer mortality rate in the United States in the last 50 years, with the major causes of this increase being lung, prostate and breast cancers. Death rates for many major cancer sites (such as stomach, colorectal, cervix, and Hodgkin's disease) have leveled off or declined during that same time period. Lung cancer is the number one cancer killer of men and women, taking approximately 149,000 lives this year. Although the incidence rate for this cancer has declined in men, it continues to increase in women, and will kill 10,000 more women than will breast cancer this year. Lung cancer is largely preventable, since smoking is the leading cause of this disease. This is a broad societal issue that cannot be solved by scientific research alone.

Breast cancer is the second leading cause of cancer deaths and the most common cause of death from any cause in women aged 40-44. Since 1973, breast cancer incidence rates, i.e., the number of new cases per 100,000 individuals per year, have increased 1.7 percent a year. Since 1987, breast cancer incidence fortunately has reached a plateau or slightly decreased. Some of this overall increase in incidence is attributed to increased detection due to mammography; some is less well understood.

The impact of cancer in general on minority and underserved populations is disproportionately great. This is certainly shown in breast cancer incidence and mortality rates, as well. Data have shown that while the incidence rates for breast cancer in African American women are lower than those for white women, nevertheless the mortality rates of African American women are higher, reflecting much lower survival rates and a lower proportion of cases detected at the earliest stages of the disease.

Cancer of the prostate is the most frequently diagnosed cancer in men, and is the second leading cause of cancer death among men. Although prostate cancer incidence rates have risen dramatically for white men, incidence rates are higher in general for African American men of all ages. African American men are more than twice as likely to die from the disease than are white men.

In sheer numbers, the incidence rates of colorectal cancer are the fourth highest after breast, lung, and prostate cancers. Overall incidence rates are similar for African American and white men, although African American men have higher rates under age 65 while white men have higher rates over age 65. Although incidence for African American women is higher overall than it is for white women, it appears that this increase has peaked and will not continue upwards for either African American women or men. For white women and men it is predicted that recent decreases in incidence rates will continue into the future. Mortality rates from colorectal cancer are highest for African American men, followed by white men, African American women, and white women, in that order.

Educating leaders in the community about breast cancer and the importance of detecting it early when it is most treatable is one aim of the National Black Leadership Initiative on Cancer (NBLIC). This initiative is a community health outreach initiative that mobilizes African American leaders in the business, scientific, medical, civic, religious, and lay communities to promote NCI's cancer prevention and control goals, and stimulate involvement of the African American community at the national, state, local, and grassroots levels. Currently, more than 40 community-based coalitions have been established within the six NBLIC regions. Current coalition activities include; publishing a newsletter for all six regions; developing a self-help smoking cessation guide; conducting cancer education teleconferences for studies at Historically Black Colleges and Universities; developing annual "Cancer Awareness" campaigns; initiating a community radon education project; and convening "cancer screening days" in each region. Similar Initiatives have been established to target the Hispanic community and in the Appalachian region of the United States.

BACKGROUND

The NCI, through its mandate to identify the causes of cancer, conducts a comprehensive program of laboratory and epidemiologic investigations on potential occupational and environmental hazards. The goal of these studies is to identify occupational and environmental factors involved in the development of cancer so that preventive measures can be undertaken. Support for this research is provided to intramural and extramural investigators. The Institute's investigation into occupational hazards began in the 1960s with studies of steel and smelter workers and metal and uranium miners. These early efforts were strengthened with the creation of the Environmental Epidemiology Branch in the 1970s and the Laboratories of Comparative Carcinogenesis, Experimental Carcinogenesis and Human Carcinogenesis in the 1980's. Since then investigations of occupational and environmental factors have been instrumental in advancing our understanding of the causes of cancer and have remained an integral part of the research and prevention effort by the NCI.

NCI pioneered efforts in the field of toxicology testing early in the 1970s; however, NCI does not now do routine carcinogenicity testing of chemicals in mice and rats. In 1981, the responsibility for managing the Carcinogenesis Bioassay Program and the necessary resources was transferred from NCI to the National Toxicology Program (NTP) of the NIEHS. Currently NCI is a member of the NTP executive committee and nominates the great majority of chemicals for high priority testing. Such nominations are based on environmental exposures, occupational exposures, production data, structural relationships to known carcinogens, and *in vitro* mutagenicity tests.

We are not pursuing this important arena of investigation in isolation. NCI collaborates with a number of other Federal agencies in these efforts and with occupational and environmental health specialists from academic institutions. Interagency Agreements with the Environmental Protection Agency (EPA) and the National Institute for Occupational Safety and Health (NIOSH) at the Centers for Disease Control and Prevention (CDC), provide formal mechanisms for exchange of information and for collaboration on topics of mutual interest. Collaborative efforts also occur with the National Institute for Environmental Health Sciences (NIEHS), the NIH Office of Research on Women's Health (ORWH), the National Center for Toxicologic Research (NCTR), the CDC's National Center for Health Statistics (NCHS) and National Center for Environmental Health (NCEH), the Department of Veteran's Affairs, the U.S. Department of Agriculture, the Federal Aviation Administration, the Department of Energy, and the Federal Communications Commission (FCC). This collaborative approach allows for an effective coordination of the Federal research effort and an efficient use of research appropriations.

NCI has also proposed a special Trans-NIH Breast Cancer Initiative to be conducted in collaboration with other Institutes, Centers, and Divisions (ICDs) of the NIH, to span all elements of breast cancer research and draw upon the expertise of specific ICDs to address the challenge of curing and eradicating the death and suffering caused by breast cancer. This includes the development of new centers for the study of environmental carcinogenesis and occupational exposures in conjunction with the NIEHS. NCI has also organized an Inter-Institute Working Group on Breast Cancer comprised of one or more representatives from each ICD and the Food and Drug Administration (FDA) with an interest in breast cancer research. The Working Group meets on a monthly basis and serves as an NIH-wide information clearinghouse and coordinating body for breast cancer activities. The group also identifies current gaps in breast cancer research and advises NCI on how to most effectively close such gaps.

NCI, in collaboration with NIEHS, has awarded six grants to evaluate environmental factors and breast cancer in high-risk areas of the northeastern United States. Last week, we met with the principal investigators for these studies to discuss implementation plans for the Congressionally-mandated study of potential risk factors contributing to the incidence of breast cancer in Long Island and other areas of the northeast. While the final details have yet to be worked out, following is a broad outline of our planned approach for this study:

- NCI will undertake the study as described, with the caveat that all of the research will be scientifically based and meritorious.
- If any specific component is not scientifically feasible, an alternative will be provided.
- Several of the current grantees in the "Northeast" study will be key participants in the Long Island study and will have their grants converted to cooperative agreements to facilitate coordination with NCI and each other. This will also eliminate bureaucratic delays and will allow us to undertake the study as rapidly as possible.
- Components of the study that cannot be carried out by these grantees will be undertaken by other qualified, peer-reviewed, investigators.
- Additional potential risk factors may also be studied, and additional grants may be awarded to accomplish this.
- Among the potential risk factors to be studied are indoor and ambient air pollution (including aircraft emissions), contaminated drinking water, electromagnetic fields, pesticides and other toxic chemicals, hazardous and municipal waste.

NCI will work closely with other Federal agencies to draw upon their expertise in some of these highly specialized areas. The entire project, including all components of the study in all phases, will likely require approximately 5 years to complete.

NCI is also working with the NIEHS, ORWH, and the National Institute of Child Health and Human Development to study the long-term and multigenerational effects from the exogenous administration of diethylstilbestrol (DES), a synthetic nonsteroidal estrogen, which was given to pregnant women to prevent miscarriages and preterm births between 1948 and 1971. NCI maintains a commitment to the long-term followup of DES-exposed mothers and their *in utero*-exposed male and female children with respect to risk and development of breast, ovarian, and prostate cancer,, and the development of clear cell adenocarcinoma of the vagina in exposed daughters. Additionally, NCI is establishing a national DES education program for health professionals and the public to disseminate information and provide recommendations regarding risks of DES exposure and standards of treatment for physicians, DES-exposed women and their families.

OCCUPATIONAL AND ENVIRONMENTAL FINDINGS

Occupational and environmental research at the NCI is broad-based. Among the many exposures evaluated include pesticides, benzene and other organic solvents, ionizing and non-ionizing radiation, engine exhausts, electromagnetic fields including microwaves, indoor air pollutants, radon, aflatoxin B_1 and other fungal products, formaldehyde, silica, talc, asbestos, wood dust, acrylonitrile, ethylene oxide, metals, hair dyes, and drinking water contaminants, as well as employment in a wide variety of occupations and industries (please see attached tables for selected agents and groups and industries under study). Our research efforts, along with those of other Federal agencies and specialists from academic institutions, have provided a number of important new leads to environmental causes of cancer. I will discuss many of these today.

5

Pesticides

Public health concerns regarding pesticides have existed for several decades, with several pesticides being carcinogenic in laboratory animals. NCI epidemiologic research on pesticides has focused on occupational groups engaged in urban and agricultural application of these chemicals. These investigations have provided clues to possible causes of cancer.

A 1983 study of urban pesticide applicators in Florida revealed an excess of lung cancer that rose with duration of employment. In an extended evaluation of the mortality experience of these subjects, the lung cancer excess persisted and it was found not to be due to tobacco use. However, it was not possible to precisely determine which specific chemicals may have been involved.

NCI studies of farmers have been particularly informative with regard to the pesticide and cancer issue. Surveys have shown that despite an overall favorable mortality experience of farmers (with lower rates for heart disease and most cancers), farmers die more frequently from leukemia, non-Hodgkin's lymphoma, multiple myeloma and cancers of the lip, skin, stomach, brain and prostate than the general population. Studies are planned to identify the factors in the agricultural environment that may account for these excesses. Studies by NCI have suggested that the herbicide 2,4-D (a widely used weed killer in agriculture and on lawns and gardens) may contribute to the development of non-Hodgkin's lymphoma. In Kansas and Nebraska we found that the risk of non-Hodgkin's lymphoma increased with the frequency of use of 2,4-D. The risks of leukemia and non-Hodgkin's lymphoma among farmers have also been associated with the use of several insecticides. While most surveys of farmers have included only men, our study in Nebraska involved women, as well. Women living on farms who were engaged in pesticide application experienced an excess of non-Hodgkin's lymphoma, just as was seen among men.

We have several studies underway to assess further the possible cancer risk from pesticide exposure among agricultural populations. In Nebraska we are evaluating the role of specific agricultural factors in the development of stomach and brain cancers, which often occur excessively among farmers. Cancer risks are also being investigated among a nationwide cohort of lawn care workers.

A major project we have recently undertaken, the Agricultural Health Study, will evaluate cancer risks among farmers and their families and will include 70,000 men and 40,000 women engaged in farming and pesticide application in Iowa and North Carolina. This study, which includes minority farmers, extensive exposure information, environmental monitoring of exposures, and biologic sample collection, is designed to last for 10 or more years and will provide detailed information on cancer and other disease risks from a variety of occupational, environmental and lifestyle factors. This is a major effort which will provide needed health information on an often underserved population. This study is being done in collaboration with NIEHS and EPA.

To date our studies in agriculture have centered on farm owners and operators. We are now beginning an effort to evaluate cancer risks among seasonal and migrant workers. This population is composed largely of minorities and includes men, women, and children who have significant potential for pesticide exposure while tilling and harvesting crops. Exposures may be accentuated due to the lack of facilities for washing and other preventive actions. We have developed a project to address many of the practical issues that face researchers attempting to evaluate cancer risks in this population.

In our research effort on pesticides, we have focused primarily on occupational groups, but there is a need to evaluate risks that may arise from general environmental exposures. One NCI study used companion animals to address this issue and found an excess risk of lymphoma in dogs whose owners used the herbicide 2,4-D on the lawn. This raises the possibility that by-stander exposure to this chemical may present a hazard.

Recent attention has focused on the possible role of non-occupational exposure to pesticides in the development of breast cancer. In 1992, Dr. Frank Falck and colleagues reported an association between levels of dichlorodiphenytrichloroethane (DDT), its metabolites, and polychlorinated biphenyls (PCBs) and risk of breast cancer. Earlier this year, Dr. Mary Wolff and colleagues published a similar finding in the *Journal of the National Cancer Institute*. Although an earlier report found no association between organochlorine pesticides and breast cancer, the results from these two recent studies indicate that further research is needed. The study by Wolff and colleagues was supported by both NIEHS and NCI grants.

NCI is currently identifying populations where unusual routes of exposure may have led to particularly high body burdens of halogenated hydrocarbons such as DDT to further evaluate the risks of breast and other cancers. Several populations may exist. In the 1970s it was discovered that the Tennessee River in Triana, Alabama, had been contaminated from a DDT production plant upstream. Many local residents caught and consumed fish from this river, which resulted in body burdens of DDT considerably above those found in the general population. The local population included a sizable proportion of African Americans, a racial group that has not been evaluated in previous studies of pesticides. We are working with the Triana Area Medical Fund, Inc., and other health care professionals in the area, to determine the feasibility of a study to evaluate DDT body burdens and breast cancer.

In collaboration with the Alaskan Area Native Health Service and the CDC, we are also assessing the opportunity for a study of breast cancer among Alaskan Natives whose diet includes a high intake of fish and marine mammals that typically have high concentrations of organochlorine pesticides. We are planning a pilot initiative to determine the feasibility of such a study.

Another project involves monitoring a cohort of Michigan families whose farms were contaminated with polybrominated biphenyls (PBBs) in the 1970s. A collaborative effort involving NCI, CDC, NIEHS, FDA, and the Michigan Department of Public Health is evaluating pesticide residues in blood among persons with and without breast cancer.

It is not clear if the reported association between human breast cancer and organochlorine residues is the result of the carcinogenic or estrogenic properties of DDT or its metabolite DDE, or if it is due to confounding variables, or if it is a marker for a high fat diet or a high meat diet containing heterocyclic amines, which may increase breast cancer risk. A diet low in fat reduces the intake of fat-soluble pesticides.

Organic Solvents

Organic solvents are widely used in industry and can be found in many commercial products. Several have been found to cause cancer in animals. Despite a number of experimental clues to carcinogenic hazard, the epidemiologic evidence is limited. Cancers of the lymphatic and hematopoietic system were found to be excessive in NCI studies of dry cleaners exposed to perchloroethylene and petroleum solvents, as well as aircraft maintenance workers and U.S. Coast Guard marine inspectors exposed to a variety of solvents and other chemicals. Case-control studies have noted links between non-Hodgkin's lymphoma and various organic solvents, and between brain cancer and methylene chloride. The studies of dry cleaners and aircraft maintenance workers contained significant numbers of women and minorities. Although it is well documented that benzene can cause leukemia in humans, the level at which this may occur, benzene's ability to cause other cancers and its mechanism of action, are not well understood. We have a major effort underway in China, where occupational exposures to benzene are still common, to address these points. A cohort of over 110,000 workers has been assembled. Preliminary analyses confirm the expected excess of leukemia and also suggest an elevated risk for lymphoma. Laboratory mechanistic components of this study suggest that benzene may exert its leukemogenic effect through chromosomal damage.

The epidemiologic and experimental evidence to date, along with the widespread use of solvents in industry and in commercial products, underscore the need for further evaluation of the carcinogenic potential of these chemicals. It has proven difficult, however, to assess occupational exposure to solvents because one agent is easily substituted for another and because the preferred chemical has changed over time. Thus, future studies focusing on this problem must employ sophisticated methods of exposure assessment in order to provide the information needed on cancer risk from solvent exposures.

NCI continues to follow the cohorts of several occupational groups to evaluate cancer risks of various cancers from solvent exposures. We are also conducting case-control studies of selected cancers to evaluate a spectrum of occupational hazards, including organic solvents. A current focus is on brain cancer, in an effort to clarify the environmental determinants of this poorly understood and often fatal disease.

Engine Exhausts

Engine exhausts include complex mixtures of combustion products, such as polycyclic aromatic hydrocarbons, which are known carcinogens and affect a large segment of the population. Studies at NCI and elsewhere have noted excess risk of lung and bladder cancers among drivers of motor vehicles. Diesel exhausts have been of particular concern. NCI and NIOSH are evaluating the opportunity for a study of diesel exhausts among miners, who may have unusually high exposures because of the confined work area.

Most studies have been conducted among white men and the link between cancer and engine exhausts is less clear among women and minorities. However, a recent NCI study, conducted with the Institute of Carcinogenesis in Moscow, found that among Russian women, urban transport workers experience a significant excess of breast cancer. In studies designed to seek explanations for the high rates of breast cancer in the northeast United States, efforts will be made to elicit information on potential risks from exposure to motor exhausts and other agents.

Hair Dyes

Recent epidemiologic studies by the NCI have found associations between personal use of semi-permanent and permanent hair dyes and the risk of leukemia, non-Hodgkin's lymphoma, and multiple myeloma. These studies were preliminary efforts in this area and the information obtained on hair dyes was limited. However, the findings raise concern in view of their widespread use and evidence that some hair dyes and related chemicals are carcinogenic in laboratory animals.

We are developing plans to follow-up on the preliminary findings. A survey is being undertaken to evaluate the ability of individuals to recall details of their hair dye use and experimental and monitoring activities are being planned to assess exposure and the potential for biologic damage. We are considering the possibility of a large case-control study of several of the lymphatic and hematopoietic cancers to clarify the risks associated with use of hair dyes.

Drinking Water Contaminants

In recent years there has been a growing concern about the contamination of drinking water. Concerns range from inadvertent introductions such as pesticides, nitrate fertilizers, and industrial solvents, to deliberate additives for public health such as chlorination products and fluoride. Although disinfection of water by chlorination yields a very important public health benefit, it has been suggested that chlorination by-products may pose a cancer risk. A recent NCI study in Iowa found that high intake of chlorinated water for 40 or more years was associated with a doubling of the risk of bladder cancer, and further studies involving other tumor sites are underway to clarify the risks that may be associated with water pollution. Chlorination of drinking water is necessary and important. As a result of these and other studies, the amount of chlorine used has been reduced so that benefits currently outweigh risks.

Fluoridation of drinking water has been employed in many communities to combat dental caries. Recent concerns about cancer risks from this process were raised by the occurrence of several bone cancers in rats exposed to high levels of sodium fluoride. This prompted

NCI to examine the cancer rates in fluoridated counties and non-fluoridated counties. No consistent increase of any cancer was observed in the fluoridated counties. A case-control study of osteosarcoma is underway to determine possible risks from water fluoridation and other factors.

In many areas of the country, there is a growing problem associated with contamination of drinking water sources with agricultural run-off, particularly for nitrogen fertilizers and herbicides. Few epidemiologic studies have been conducted to evaluate health hazards that may be associated with these exposures. In the NCI case-control studies of brain and stomach cancer in Nebraska, water samples from private wells are being assayed for nitrate levels. Nitrates are of a special concern because they can combine with various amines in the stomach to form nitrosamines which are thought to be potent carcinogens. Water samples are also being collected from a sample of homes in the Agricultural Health Study to determine pesticide and nitrate levels.

Ionizing and Non-Ionizing Radiation

The carcinogenic effects of ionizing and non-ionizing radiations are under intensive investigation. Ionizing radiation causes cancer at many sites, but risks at low levels from natural sources and medical uses are not well characterized. Potential cancer risk from nuclear processing and generating plants remains a significant public concern. A recent comparison of the mortality among populations residing near nuclear facilities with more distant demographically matched populations found no evidence of radiation-related effects. A number of investigations are underway to evaluate cancer risks among groups exposed to low levels of radiation from medical or occupational sources, including workers in the nuclear industry. Of particular importance is a very large study of x-ray technologists, primarily women, who have low-level radiation exposure. The NCI has also initiated studies of Chernobyl workers who were involved in the clean-up process following the reactor accident.

The NCI has recently completed an analysis of the eleven major studies of underground miners exposed to radon which has clarified and quantified the risk of lung cancer from this ubiquitous exposure.

Ultraviolet radiation is the major etiologic factor in skin cancer. NCI studies have found that individuals with atypical moles are prone to malignant melanoma from exposure to the sun. An intensive outreach program was designed to alert the medical community and the public to encourage examinations to identify these tumors at an early stage when they are easily treatable.

Electromagnetic fields have been proposed as possible risk factors for certain cancers, especially leukemia and brain cancer. Although the experimental and epidemiologic data to date are inconclusive, the NCI has launched several epidemiologic investigations because of the public concerns and the universal occurrence of electromagnetic fields in our homes and at the work place.

We are collaborating with investigators at several medical institutions in a study of childhood leukemia to assess the influence of electromagnetic fields. Detailed measurements are being obtained on the strength of electromagnetic fields in several rooms in subjects' homes. Information on other potential leukemogens is also being collected to evaluate possible confounding factors. We are in the final stages of data collection for this project.

In addition, NCI is initiating a study of brain cancer in adults to investigate both occupational and non-occupational exposures to electromagnetic fields, with a particular focus on the use of cellular telephones.

Ham radio operators represent another group that has considerable exposure to electromagnetic fields. We are using government licensing records from the FCC to examine mortality patterns in a large group of ham radio operators. We have recently initiated a study of cancer among sailors exposed excessively to microwave radar during the Korean conflict.

Indoor Pollution

With greater attention to tighter homes and buildings for energy conservation, concerns have arisen over possible effects of indoor pollution from exposures to radon, cooking vapors, and environmental tobacco smoke. Although radon clearly causes lung cancer among uranium miners, the risks associated with lower levels of indoor radon seeping into homes are less clear. NCI has an extensive effort on this important public health question with collaborative studies in New Jersey, Missouri, Sweden, and China.

Collaborative studies involving NCI scientists have suggested that volatile organic compounds and particulates in homes may also pose a cancer hazard. For example, lung cancer was found to be elevated among Chinese women exposed to cooking oil vapors from high-temperature wok cooking and to combustion products from coal-heating stoves in poorly ventilated homes. Environmental tobacco smoke has emerged as an important cause of lung cancer. NCI studies in New Jersey, Louisiana, and Missouri have been instrumental in clarifying this hazard.

It has been particularly difficult to evaluate cancer risks from ambient air industrial pollutants. However, NCI studies of inorganic arsenic may provide a model for this type of investigation. Our studies of smelter workers have clearly demonstrated that arsenic is a lung carcinogen, while a subsequent study recorded elevated risks among men and women living near plants that released arsenic into the environment. This finding was confirmed in a collaborative study from China.

Occupational Cancer Among Women and Minorities

We are seeking ways to enhance the research effort on occupational exposures among women and minorities. Over the past few decades, women and minorities have become an increasingly important segment of the work force, and have been encountering greater exposure to potentially toxic occupational agents. Nevertheless, only a limited number of studies have evaluated cancer risks among women and minorities from occupational exposures. The NCI, in collaboration with NIEHS, ORWH, and NIOSH, is sponsoring an international conference on occupational cancer among women, including minority women, on November 1 and 2 in Baltimore, MD. We organized this conference to bring together experts from around the world to present new data on this topic, to identify data resources for further studies, to define research needs, and to stimulate research in this neglected area.

OUTREACH

The NCI has an important mandate to inform the scientific community and the public regarding advances in our knowledge about cancer. This is done through the media and public meetings such as the field hearing today, and scientific meetings where immediate exchange of new information can be made to the medical, scientific, and lay communities. The NCI cooperates with other State and Federal government agencies who have regulatory responsibilities. We share findings with the EPA, OSHA, FDA, and CPSC through formal meetings and staff-to-staff discussions regarding our work. Recently we have held such discussions with EPA regarding pesticides and with FDA regarding hair dyes. We also work in coordination with various Health and Human Services committees, and with NIEHS, to ensure collaborative and complementary, not duplicative, research efforts into health effects of environmental and occupational carcinogens.

The NCI uses several other approaches to inform and advise the public on actions to prevent environmentally and occupationally-caused cancer. For many studies and topics we develop fact sheets and press releases to apprise the media and the public of important findings. Packages have been developed for pesticides, hair dyes, radon, passive smoking, radar guns, chlorinated drinking water, electromagnetic fields, and cellular phone use, to name just a few. Updates on NCI's portfolios regarding cancer prevention activities, and environmental carcinogenesis activities, are available to the press and the public. NCI holds press conferences to announce the commencement, or the results, of special initiatives. Two examples of recently-held press conferences include the announcement of the start of the Agricultural Health Study and of the results from the China study on vitamin intake and cancer development. Pamphlets describing *What You Need to Know About....* various cancers are available, and include all known risk factors and preventive actions regarding the specific cancer.

As a further extension of this outreach, NCI staff regularly make presentations to various groups interested in specific topics. For example, NCI will send representatives to the conference to be held next month on Breast Cancer and the Environment at Adelphi

University in Garden City, NY, sponsored by *1 in 9: The Long Island Breast Cancer Action Coalition*. NCI staff make presentations on the results an implications of NCI research at many other public forums on occupational and environmental causes of cancer. In these settings, practical aspects of our findings are noted. For example, our studies of farmers have shown that using protective equipment when applying pesticides or changing clothing immediately after completing application greatly reduces the risk of cancer. This information provides practical guidance to applicators with regard to exposure control.

NCI also accomplishes this outreach through the PDQ (Physician Data Query) system which is available via several routes (including computer modem, CD-ROM, and fax) to physicians, other health care professionals, and the public. PDQ includes up-to-date information on state-of-the-art therapy and clinical trials supported by NCI. The public can obtain information about cancer from the NCI Cancer Information Service. A trained information specialist can be reached by calling the toll-free phone number 1-800-4-CANCER. NCI works with other public and private agencies as necessary to conduct all needed studies and media campaigns.

Any information that requires people to review, consider, and possibly change basic lifestyle patterns takes thought, multiple message reinforcements and time. For example, the private sector, in particular the food industry, has been a willing and effective partner with government health agencies in the implementation of the "5 A Day" program and the development of a strategic plan to improve the American diet. Continued collaboration between health agencies and the private sector is essential if we are to reduce the burden of cancer in America.

CONCLUSION

In summary, NCI has a long history of active and productive research on the carcinogenic effects of occupational and environmental exposures. We are committed to enhancing our effort in this area to elucidate the occupational and environmental determinants of cancer, and to stimulate preventive actions that will help reduce the cancer burden of the population. I thank you for the opportunity to testify today, and I would be happy to answer any questions.

TABLE 1. SELECTED ENVIRONMENTAL AGENTS UNDER STUDY IN THE UNITED STATES

Air Pollution-Indoor
Cooking oil vapors
Environmental tobacco smoke
Polycyclic aromatic hydrocarbons
Radon

Air Pollution-Outdoor
Motor exhaust emissions
  (including Dinitropyrenes)
Diesel exhaust
Gasoline exhaust

Smelter Emissions
Arsenic
Cadmium
Chromium
Lead
Nickel
Zinc

Aromatic Amines
2-acetylaminofluorene
Benzidine
β-Naphthylamine

Dusts
Cotton
Grain
Organic
Plastic
Textile
Wood

Heterocyclic Amines
IQ (2-amino-3methylimidazo(4,5,*f*)quinoline)
MeIQx (2-amino-3,8methylimidazo(4,5,*f*)
  quinoaxline)
PhIP (2-amino-1-methyl-6-phenylimidazo[4,5,*b*]

Organic Solvents
Benzene
Carbon tetrachloride
Methylene chloride
Tetrachloroethylene
Toluene
Tricholoroethylene
Xylene

Pesticides
Insecticides:
  Carbamates
  Carbaryl
  Carbofuran
  Chlorinated hydrocarbons
  Aldrin
  Chlordane
  DDT
  Heptachlor
  Lindane
  Toxaphene
  Organophosphates
  Diazinon
  Dichlorvos
  Malathion
  Phorate
  Terbufos
  Polyhalongenated biphenyls (polybromated,
    polychlorinated)
Herbicides:
  Acetamides (Alachlor, Popachlor)
  Benzoic acids (Dicamba, Chloramben)
  Dinitroanilines (Trifluralin)
  Phenoxyacetic acids ([2,4-D][2,4,5T])
  Triazines (Atrazine, Cyanazine)
Fungicides:
  Captan
Fumigants:
  Ethylene dibromide
  Ethylene dichloride
  Phosphene

Petroleum Products
Diesel fuel
Gasoline
Fuel

Tobacco Products and Byproducts
Cigarettes
Chewing tobacco
Environmental tobacco smoke

TABLE 1. SELECTED ENVIRONMENTAL AGENTS
UNDER STUDY IN THE UNITED STATES (Continued)

Radiation

Ionizing:
- Indoor radon
- Neutron therapy
- Reactor accident (Chernobyl) contamination
- Radioisotopes
  - Iodine-131
  - Radium-224
  - Thorotrast
- X-rays

Nonionizing:
- Electromagnetic
- Ultraviolet

Drugs

p-Aminosalicytic acid
Amphetamines
Anti-convulsant drugs
Cancer chemotherapeutic agents
Chloramphenicol
Diuretics
Immuno suppressive drugs
Phenacetin-containing analgesics
Phenylbutazone

Exogenous Hormonal Substances

Diethylstilbestrol (DES)
Menopausal hormones (estrogen and progestin)
Oral contraceptives
Tamoxifen

Water Pollution

Arsenic
Chlorine and chlorination byproducts (includes chloroform and other trihalomethanes)
Fluoride
Nitrates
Pesticides

Natural Substances

Aflatoxins
Sterigmatocystin
Food molds

Biological Agents

DNA Viruses:
- Epstein-Barr Virus
- Hepatitis B
- Herpes simplex viruses (types 1,2,6,7)
- Human papillomaviruses

RNA Viruses:
- Hepatitis C
- HIV-1 & -2
- HTLV-1 & -2

Bacteria:
- Chlamydia
- Helicobacter pylori

Miscellaneous Agents

alcohols
asbestos
fertilizers
formaldehyde
hair coloring products

TABLE 2. SELECTED OCCUPATIONAL GROUPS AND INDUSTRIES UNDER STUDY IN THE UNITED STATES

Acrylonitrile workers
Agricultural workers
Aircraft maintenance workers
Artistic painters
Beauticians
Benzene & Benzidine workers
Ceramic fixture workers
Chemist & pharmaceutical workers
Chromate pigment workers
Coast Guard marine inspectors
Copper smelter workers
County extension agents
Dry cleaners
Dusty trades with silica exposure
Embalmers
Farmers
Firefighters
Forestry and soil conservationists
Formaldehyde workers
Furniture workers
Grain handlers
Herbicide applicators
Iron and iron-steel workers
Jewelry workers
Laboratory workers
Metal polishers and platers
Miners (tin, uranium and others)
Nuclear power workers
Oil refinery workers
Pesticide applicators
Photographers & photographic film makers
Pipefitters and plumbers
Plastic resin workers
Pottery workers
Quartz workers
Radiologists
Shipyard workers
Textile workers
Truck drivers
Veterinarians
Welders
X-ray technologists
Zinc-chromate paint sprayers

Mr. TOWNS. Thank you, Dr. Blair.

Dr. Schonwalder.

STATEMENT OF CHRISTOPHER SCHONWALDER, Ph.D., ASSISTANT TO THE DIRECTOR, NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES, NATIONAL INSTITUTES OF HEALTH

Dr. SCHONWALDER. Thank you.

Mr. Chairman, and members of the subcommittee, thank you for the opportunity to testify here today on research efforts to link cancer, environmental contaminants, and industrial carcinogens.

My name is Christopher Schonwalder. I am the Assistant to the Director, Kenneth Olden, of the National Institute of Environmental Health Sciences and we are 1 of the 17 Institutes at the National Institutes of Health. I have submitted testimony for the record, so I will be brief, verbally, and present just a few points and then respond to questions.

Human health and human disease result from the interaction over time of a person's individual susceptibilities with his or her environment. That is to say, there are three factors: one's genetics, which determine individual biochemistry and physiology and susceptibilities to diseases; one's environment, which is composed of all exposures from air, food, and water; and, the third is time.

You will notice that we only have control over one of these three factors, and that is our environment.

NIEHS's role is to provide a sound, scientific knowledge base regarding human health effects due to exposures to environmental agents. NIEHS research is used by State and Federal regulatory agencies to set standards and to make public policy decisions that benefit the health of all Americans. It is also used by health professionals to prevent or intervene in diseases caused by environmental exposures.

NIEHS has been and continues to be a leader in the field of environmental carcinogenesis research. Currently, NIEHS is supporting work to learn more about dozens of environmental agents that are known or suspected carcinogens, including electric and magnetic fields, radon, ultraviolet radiation, mineral fibers, metals such as nickel and cadmium, pesticides, and combustion byproducts.

NIEHS is also the lead agency of a multiagency Federal program, called the National Toxicology Program or NTP. NIEHS operates the program and contributes 95 percent of its funding. Dr. Kenneth Olden, Director of NIEHS, also serves as Director of the NTP.

As part of its mission to conduct toxicology research and testing, NTP conducts rodent carcinogenesis bioassays on commercial and consumer chemicals and other compounds to which humans are exposed. Selection of these chemicals for high-priority testing is the responsibility of the NTP executive committee, which comprises the heads of nine Federal agencies. NTP studies use animal models to identify and predict which chemicals are most likely to cause cancer in humans, and the results obtained are used to prevent human exposures that can lead to cancer and to other diseases.

From its inception, the carcinogenesis bioassay program has evaluated over 400 compounds for carcinogenicity in rodents and

29 compounds are currently under investigation in chronic or prechronic studies. These data on the cancer-causing properties of high-risk or high-exposure chemicals and environmental agents are used by a wide array of State, Federal, and international public and regulatory agencies. We've been doing this since the late 1970's, and new scientific advances will allow us to do it better.

The underlying principle of the work done at or sponsored by our Institute is good science for good decisions. By understanding the interactions between human physiology and biochemistry with environmental agents, we will be better able to assess risks of human exposures. We will also be better able to detect environmental disease early and possibly intervene, and such understanding will allow us to communicate useful information to health professionals and the general public alike, regarding issues and preventive measures in environmental health. New programs in physician and community education have been initiated, and these will allow us to do better.

Thus, NIEHS is committed to the study of environmental causes of human cancers and other diseases, and is active in research on many fronts to elucidate these links and define the risks to human health. NIEHS also affirms its critical role in disseminating its research findings to the public, the medical establishment, and the regulatory agencies. It is our goal to rapidly translate scientific research findings into positive health outcomes in the American population.

We've given this a start and we can and we will do better.

I thank you for the opportunity to testify today, and would be pleased to answer any questions you might have.

[The prepared statement of Dr. Schonwalder follows:]

Statement

Christopher Schonwalder, Ph.D.

Assistant to the Director

National Institute of Environmental Health Sciences
National Institutes of Health

before the

Human Resources and Intergovernmental Relations Subcommittee
of the
House Government Operations Committee

U.S. House of Representatives

30 October 1993

Mr. Chairman and members of the Subcommittee, thank you for the opportunity to testify here today on the link between cancer and environmental contaminants and industrial carcinogens. My name is Christopher Schonwalder. I am Assistant to the Director of the National Institute of Environmental Health Sciences (NIEHS), one of seventeen institutes at the National Institutes of Health (NIH).

Human health and human disease result from the interaction over time of a person's individual susceptibilities with his or her environment. NIEHS's role is to provide a sound scientific knowledge base relating environmental exposures to human health outcomes. The scientific data generated by NIEHS are used by doctors and health providers to prevent or intervene in diseases such as cancer and to promote good health. NIEHS research is also used by state and Federal regulatory agencies to set standards and make public policy decisions that benefit the health of all Americans.

The importance of the environment in the development of cancer has been recognized for many years. Past estimates of the number of cancer cases traceable to human exposure to environmental chemicals have ranged from 3% to 25% of all cancer cases. It has been estimated that 1,170,000 Americans will be diagnosed with cancer in 1993. If even 5% of those cancers are environmentally related, that works out to almost 60,000 environmental cancer cases in 1993 alone.

If one widens the definition of an individual's "environment" to include diet, behavior, and social conditions, which is how we define "environment" at NIEHS, the number of "environmentally" related cancers is even higher. It is important to study these factors together since many lifestyle and environmental factors appear to work together to increase cancer risk. For instance, some industrial workers are at high risk for lung cancer due to the combined effects of cigarette smoke and exposure to certain toxic substances. Exposure to asbestos in combination with cigarette smoking increases an individual's lung cancer risk nearly 60 times. Smoking has also been shown to enhance lung cancer risk in underground miners exposed to radon.

NIEHS has been and continues to be a leader in the field of environmental carcinogenesis research. Currently NIEHS is supporting work on dozens of environmental agents that are known or suspected carcinogens, including electric and magnetic fields, radon, ultraviolet radiation, mineral fibers, metals such as nickel and cadmium, pesticides and combustion byproducts.

NIEHS is also the lead agency of a multiagency Federal program called the National Toxicology Program (NTP). NIEHS operates the program and contributes 95% of its funding; Dr. Kenneth Olden, Director of NIEHS, also serves as Director of the NTP. As part of its mission to conduct toxicology research and testing, NTP conducts rodent carcinogenesis bioassays on industrial chemicals and other compounds to which humans are exposed. This program, the Carcinogenesis Bioassay Program, was transferred in

1981 from the National Cancer Institute (NCI) to NIEHS to be part of the NTP. Selection of chemicals for high-priority testing is the responsibility of the NTP Executive Committee, which comprises the heads of nine Federal agencies. NTP studies use animal models to identify and predict which chemicals are most likely to cause cancer in humans; the results obtained from our tests are used to prevent human exposures that can lead to cancer and other diseases. Since its inception, the Carcinogenesis Bioassay program has evaluated over four hundred compounds for carcinogenicity in rodents, and 29 compounds are currently under investigation in chronic and prechronic studies. These data on the cancer-causing properties of high-risk or high-exposure chemicals and environmental agents are used by wide array of state, Federal, and international public health and regulatory agencies. Recent U.S. regulatory actions that were taken on NTP data include regulation of products containing methylene chloride by the Consumer Product Safety Commission as well as promulgation by the Occupational Safety and Health Administration (OSHA) of final rules for occupational exposure for hazardous chemicals in laboratories (including 1,3-dichloropropene, diepoxybutane, and methylene chloride). OSHA has also established new Permissible Exposure Limits for benzene, 2-nitropropane, perchloroethylene, o-toluidine, and vinylcyclohexene dioxide based on NTP test results.

A novel strategy in NTP studies is the testing of mixtures of chemicals that approximate conditions commonly encountered in the environment, as opposed to the testing of individual components. Two test mixtures now being evaluated simulate typical groundwater contamination (largely from various agricultural chemicals) in two parts of the country, Iowa and California. NIEHS research is also underway to develop and validate new and faster methods to determine the carcinogenic potential of chemicals.

NIEHS is also a lead agency in the effort to determine the health effects of electric and magnetic fields (EMF). NIEHS is currently collaborating with the Department of Energy (DOE) to implement a research program in this area. Recently NIEHS convened a working group of Public Health Service agencies with an interest in EMF health research needs--NIEHS, NCI, the Food and Drug Administration, and the National Institute of Occupational Safety and Health (NIOSH) of the Centers for Disease Control and Prevention (CDC). NIEHS's role in this collaborative research agenda is specifically the study of cancer and other health effects associated with the use and generation of electric power.

In 1986, the Congress established the NIEHS Superfund Research Program. This program funds 18 multi-project research grants that support 142 projects in 29 institutions involving over 1000 scientists who work on problems associated with Superfund hazardous waste sites. The projects combine efforts to develop waste cleanup technologies with research on the risk posed to the health of populations who live near Superfund sites. Evaluation of that risk requires studying both how toxic chemicals move physically through the environment and where humans encounter them as well as tracking various possible health effects (including cancer).

NIEHS also makes a concerted effort in designing its research agenda to stay ahead of the curve in anticipating the health research needs associated with the different environmental and occupational exposures that arise from new technologies. For instance, several compounds now under study were placed there due to concerns arising from exposures in the newly emerging telecommunications and electronics industries. In this manner NIEHS hopes to generate the data needed to prevent any possible adverse health outcomes, including cancer, which might arise from these new exposures before they become a problem.

All of these programs are complemented by NIEHS's additional programs in epidemiology and basic biology. Epidemiology is the study of disease incidence in human populations. By surveying both the environmental exposures of a group of people and their cancer rates, we try to determine the relative cancer risks of particular environmental exposures. NIEHS is also moving towards the capability of determining how susceptibilities of individuals within a population influence cancer risk. One way in which individuals differ is in their bodies' natural ability to "detoxify" environmental chemicals to which they have been exposed, that is, to make them less toxic. NIEHS scientists, led by Dr. Jack Taylor, have found that smokers who lack a critical detoxifying protein have a vastly increased risk of developing bladder cancer from smoking cigarettes. Information such as this will be crucial in counseling people about their cancer risk. Additional studies on urinary bladder cancer are underway at NIEHS in collaboration with NCI.

Dr. Carl Barrett, an internationally known researcher, heads the NIEHS intramural program in Molecular Carcinogenesis. The research efforts in this program include studies to identify critical target genes that are involved in cancer and to define how environmental chemicals act upon these genes to influence cancer development. In fact, Dr. Barrett is one of the leading scientists working to identify one of the breast cancer genes. Major areas of research in the Molecular Carcinogenesis program include studies on women's health, including breast, ovarian and endometrial cancers; aging and cancer; genetic predisposition to cancer; and molecular processes in cancer development and cancer spread (or metastasis). This laboratory has done extensive work on the mechanisms of known human carcinogens, including asbestos, arsenic, 1,3-butadiene, benzene, and methylene chloride, all of which are important environmental carcinogens.

Ethnic and racial minority groups and populations of low socioeconomic status suffer disproportionately from cancer. Cancer incidence and mortality rates are generally higher for blacks than for whites. In 1989, the incidence rates were 401 per 100,000 for blacks and 380 for whites, a 6% difference; mortality rates were 227 for blacks and 169 for whites, or about 34% higher for blacks. The 5-year survival rate for cancer in blacks diagnosed from 1983 through 1988 was about 38% compared with 54% for whites. Some of this difference can be attributed to late diagnosis and lack of access to health care.

There is also evidence that blacks and other minority populations live with a disproportionate share of environmental and occupational hazards that may contribute to their risk of cancer (and other diseases). Findings have shown consistently that members of disadvantaged groups, including many blacks, Native Americans, and Hispanics, are more likely than affluent whites to live near sources of pollution such as waste sites; to reside in urban areas with high levels of lead and carbon monoxide; to eat significantly greater amounts of contaminated fish; and to be employed in more dangerous occupations such as migrant farm work.

The current social concept that seeks to recognize and address these disparities in environmental exposure is termed Environmental Justice. NIEHS has been a major player in promoting Environmental Justice by focusing the research agenda on the health effects of these disproportionate environmental exposures. We are the lead sponsor (with the U.S. Environmental Protection Agency (USEPA), NIOSH and the Agency for Toxic Substances and Disease Registry of the CDC, and DOE-Argonne National Laboratory) of a major national symposium coming up in February 1994 that will bring together all the stakeholders in the Environmental Justice arena--academic researchers, government scientists, representatives of Federal and state regulatory agencies, public health officials at the state, local and Federal level, community activists, and members of the affected communities. These stakeholders will be able to create the agenda needed to fill current research gaps, with input from all the participants--especially those from the affected communities who face the greatest risk and have had no forum for participation in the past.

Women's health and women's cancers are a major research focus at NIEHS. Besides the work mentioned above on molecular carcinogenesis of breast, ovarian and endometrial cancers, NIEHS has scientists working on malignancies associated with prenatal exposure to diethylstilbestrol, or DES. Other researchers are looking at the role of hormones in breast and prostate cancer. This research may have significant implications for public health, since some environmental chemicals can be shown to act like hormones in the laboratory. Outside scientists supported by NIEHS grants are also doing important work in this area. Dr. Mary Wolff, a researcher supported by grants from NIEHS and NCI, reported results this year that may indicate a link between breast cancer and the presence of DDE (a metabolite of the pesticide DDT) in breast tissue. New research projects are also being funded by NIEHS in collaboration with NCI to examine further the possible link between breast cancer and environmental chemicals. In another collaborative study, the Agricultural Health Study, a joint effort between NCI, USEPA, and NIEHS, research will focus on the health of American farm families and will trace their environmental and occupational exposures, especially to agricultural chemicals, using exposure histories, work practice diaries and environmental monitoring. These exposure data will be combined with health measurements in order to determine the link between those exposures and the families' health status. Cancer is one of the major endpoints followed in this study, including breast cancer. NIEHS is also joining with NCI, the NIH Office of Research on Women's Health, and NIOSH, to sponsor a conference in Baltimore on Monday and Tuesday, November 1 and 2, 1993, entitled "Women's Health: Occupation and Cancer". The workshop will address studies of women's occupational cancers which have received almost no attention in the past.

Outreach and communication activities are high on the agenda at NIEHS. We employ a multilevel strategy to communicate information to Americans concerned about their environmental exposures. Environmental concerns are local in nature; Iowa farming communities have different concerns than New England fishing communities. For this reason, NIEHS has called upon its Environmental Health Centers, which are located throughout the U.S., to provide outreach services to their communities on local environmental health concerns. Demonstrated success of their outreach programs will be a critical component in the continued funding of these centers. A second level of environmental health education also occurs through interaction of patients with their physicians. NIEHS is concerned about the fact that few clinicians receive formal training in diagnosis and treatment of environmental disease. We have implemented a program in collaboration with NIOSH to provide support to medical schools for curriculum development in environmental/occupational disease training. On the third or one-on-one level, NIEHS has an Office of Communications at its campus in North Carolina which is charged with responding to public inquiries about health and the environment. In addition, NIEHS has recently contracted to explore the feasibility of creating a national

1-800 number to provide all Americans with answers to their environmental health questions.

In conclusion, NIEHS is committed to the study of environmental causes of human cancers and is active in research on many fronts to elucidate these links and define the risk to human health. NIEHS also affirms its critical role in disseminating its research findings to the public, the medical establishment, and the regulatory agencies to increase as far as possible the impact of its scientific research on the health of Americans.

I thank you for the opportunity to testify today and would be pleased to answer any questions you may have.

Mr. TOWNS. Thank you very much, for your testimony.

What products on the market would you not have your children use? And I want to try to personalize this to the point where I can fully understand it. For example, in the written testimony that Dr. Davis submitted, she referred to lice shampoo causing brain cancer in young children. Could you tell us the things that you would not allow for your children?

Dr. BLAIR. Let me—I would be happy to do that, Congressman. I would like to do it as a scientist and a citizen, myself, but I'm not going to speak for the Cancer Institute on this issue.

Mr. TOWNS. OK.

Dr. BLAIR. But, myself, I look at the data——

Mr. TOWNS. I accept that.

Dr. BLAIR [continuing]. And try to make judgments on these particular issues.

When you have enough evidence is a very difficult thing. It's difficult for all of us, and scientists are not necessarily better at this than anyone else, but I tend to look at it from a point of view that if, I decide how important this issue is to me, and then I use that as my decisionmaking process, with regard to whether I use a product or not.

For example, in the last 2 years or so, we have done several studies in my group and we found an association between lymphatic and hematopoietic and hair dyes. Now, we heard a lot of talk about hair dyes. These are chemicals that are known to be carcinogenic in laboratory animals and these are new findings, epidemiologically, because these tumors had not been linked to them before.

I don't have to use hair dyes yet, but I probably will sometime. The gray is coming in at the bottom——

Mr. TOWNS. I don't have to use it, either.

Dr. BLAIR [continuing]. But I don't think I would. I don't believe—it's not that important to me, you know, but it might be different for other people. So, that sort of thing.

I'm real careful about pesticide use, for example, on my lawn. I sometimes spot-spray things. I mean, I don't want it looking brown, but I don't prophylactically treat my lawn with pesticides. That's a personal choice. My lawn doesn't look quite as well as some of the others.

So, I think we all have those sort of things that we can do, based on data that maybe the scientific community as a whole will not yet say causes cancer. But we still make personal choices.

Mr. TOWNS. I'm going to yield to Congressman Ackerman.

Thank you very much, Dr. Blair.

Mr. ACKERMAN. Thank you very much, Mr. Chairman, and thanks for starting us off on that personalization of the question, and I appreciate your answer, doctor, not speaking as part of the Institute with specific products, but speaking as an individual, making a determination how important it is to you.

But, yet, you have an advantage that most of the citizens do not, and that is, indeed, you are a scientist and that you are very, very much aware of all of these things. Most of us think that, gee, if they're selling this in the supermarket and not over the counter, the government is probably letting it be sold and, therefore, there's no problem. Most people don't know that if they want their lawn to look prettier or their hair to look prettier, that perhaps they're not going to live long enough or their children might not live long enough to enjoy the other beauties that there are in the world and cannot make that kind of decision, based on any kind of reasonableness that we might expect them to.

We have been doing a terrible job, in some cases no job at all, in allowing products to come to the market, without warning the public of the possibilities and the dangers and the risks—those where researchers know them. But, most people aren't.

Why aren't we labelling things, as some of the witnesses have suggested before, and why is not the scientific community alerting the public that there are so many risks involved in this?

My child and that lady's child are entitled to the same protection as your child and those in the science community, in having parents who are informed, and we are not.

Dr. BLAIR. A very good point, Mr. Congressman.

We do try to do that, at the Institute, and we do it in several different ways. We have interactions with the press and the public on a regular basis. This happens through my office all the time.

The Institute has an Office of Cancer Communication, that is to disseminate information to the public; and I think probably the most important role, actually, at least in the past, has been our involvement in providing key scientific advice to the regulatory agencies who have the responsibility to make decisions regarding public policy on these issues. We regularly appear before the Environmental Protection Agency, the Occupational Safety and Health Administration, the FDA, regarding products that we have studied, where we have information that is useful and important to them, to make their regulatory decisions.

Mr. ACKERMAN. Yes, but there's—there's such a poor job being done about this. As the chairman points out, there is some evidence that the stuff that people use to treat lice can have carcinogenic effects, and I know, as a parent of three children who grew up in the public school system, at one time or another, you got a note home that told you, make sure your kid doesn't wear some other kid's hat and make sure this and that and the other thing, and, by the way, use this thing as a shampoo. And this came from the school nurse, and the school nurses aren't even aware. They're not necessarily scientists and researchers and we rely so heavily on that.

There is no job being done, and we're just accepting these things that are contrary to our interests.

Dr. BLAIR. Well, I used that same sort of shampoo on my children, when they got lice, too, Congressman. The study on this shampoo came out in the last 6 months, so this is really a very recent thing.

But, that doesn't change your point in that how do we get that information out, but I say the Institute has no regulatory authority. We——

Mr. ACKERMAN. Tell us——

Dr. BLAIR [continuing]. We deal with the——

Mr. ACKERMAN [continuing]. Tell us, if——

Dr. BLAIR [continuing]. With the——

Mr. ACKERMAN [continuing]. Tell us, if you would, something about this study, now.

We're going to take 5 years—how much is it going to cost us? Is it—is it going to go for the full amount that we were hoping to have appropriated?

Dr. BLAIR. The breast cancer study on Long Island?

Mr. ACKERMAN. The breast cancer study.

Dr. BLAIR. Can I ask my colleague, Dr. Sieber, to answer that?

Mr. ACKERMAN. Please.

Dr. BLAIR. She is, coordinates breast cancer research at the Institute.

Dr. SIEBER. I don't have prepared remarks to make, but I'd like to begin by assuring you all——

Mr. ACKERMAN. Could you speak up a little bit louder?

Dr. SIEBER [continuing]. Assuring you all of Dr. Broder's highest level of commitment to the breast cancer study. His high level of commitment, as well as the commitment of the senior NCI staff, and also the commitment and real enthusiasm of the six principal investigators, groups, who will be participating in this study.

As Dr. Blair mentioned, there was a meeting on October 20, amongst high-level NCI and NIEHS staff, as well as individuals from the six participating institutions, which lasted the full day. I think it was a very important meeting, because it gave all of us the opportunity to understand better what the function of each unit will be and gave us the opportunity to begin coordinating this really very important effort.

The study is going to happen. Officially, the study began last—or the process began last month, and is in the process of being implemented. There are some details that need to be worked out, in particular details related to how we're actually going to measure exposures that took place in the past and, even, currently, to things that are exceedingly difficult to measure, such as automotive and airplane exhaust. These are details that will be worked out. We want to do it right, and the study will happen.

The study will cost $1.25 million, approximately; $1 million from NCI funds, $250,000 from NIEHS funds. The study will take, we expect, between, between 3 and 5 years.

Mr. ACKERMAN. One moment.

You cite a number of $1.25 million?

Dr. SIEBER. Per year.

Mr. ACKERMAN. Per year.

Do you think that that number is going to be adequate or sufficient to conduct the kind of study that we have been hoping for?

Dr. SIEBER. I believe it will, and Dr. Broder and the rest of the NCI staff have determined that if additional funds need to be added to augment these grants, in particular——

Mr. ACKERMAN. I'm sorry, could——

Dr. SIEBER [continuing]. If additional funds are required to augment these grants, in particular in the area of exposure assessment and biodissymmetry, we will find the money to do it.

Mr. ACKERMAN. Are you—you just said, I believe, and I'm straining a little bit to hear you, I'm afraid, that this money includes the grants that have been awarded?

Dr. SIEBER. Yes, it is. Yes, it does.

Mr. ACKERMAN. I recall, and I found it here, the grants that have been awarded, and I believe there are six of them that were announced, if it says fiscal year 1993 awards, does that indicate it's annual?

Dr. SIEBER. Yes, it does.

Mr. ACKERMAN. OK; 3, 6, 7, 9, 12, 13, 14, 15, 16—there's $1.6 million, roughly, over six investigative grants. So, you're over the $1.25 already, on the six, six grants. And, you know, I'm at a loss here, because it seems to me—I'll read them to you. I suppose you're familiar with them, moreso than I.

One is awarded, for $193,000 and change to Ton Xiang Xing of Yale University. There's $305,000 to Mary Wolff at Mount Sinai. There's $264,000 to David Hunter at Brigham and Young. Almost $194,000 to Joe L. Frodenheim at the State University in Buffalo. We do, and we're happy to see $346,000 to Lee Kaplan in Stony Brook. And the remaining almost $308,000 going over to Johns Hopkins University to study environmental risk factors.

Dr. SIEBER. This adds up at about $1.5 million. The $1.25——

Mr. ACKERMAN. Well, OK——

Dr. SIEBER [continuing]. Will——

Mr. ACKERMAN [continuing]. I said $1.6. For government work, that's pretty good.

Dr. SIEBER. The $1.25 was the amount of money that the government specifically set aside to carry out these projects. It turns out that the projects, as they came in with their budgets, required a bit more money than that, and that's what this $1.5 million figure represents.

Mr. ACKERMAN. OK. My question really is, doing this research, wherever it is, is certainly welcomed, and we're not quibbling over that. Certainly more of this should be done.

But if—if the congressional intent was not just to, to talk about the environmental risk factors, but to find out why it is higher on Long Island. Certainly I would think that any of these other tests, in the work that's going to be done, there will be some kind of contribution to understanding the elements that are being studied and how they impact upon breast cancer.

But I think that what we have been looking for is why is the rate of incidence higher on Long Island, in particular; and the kind of research, again, not from a scientist, from a layperson, it seems to me that there would have to be major investigations of Long Island's specific situations and problems, whether airborne or waterborne or pesticide driven, to make determinations as to where and how these particular things were used on Long Island.

That would give us some indication of nationwide applications of what we would find, hopefully, from this kind of a study. But if we're not going to, if we've already used up $1.6 of the $1.25 million, and you beef it up a little to cover these things, then we're not trying to find out what's been happening at some of our major manufacturers, what's been happening from our airlines and all the air traffic that we have over Long Island, the, our love of the automobile in Long Island and what that does to our health, as well, all of these other environmental things. It seems to me that you have no money left for that, unless I'm missing something here.

Dr. SIEBER. This money will be spent for looking at those issues.

Mr. ACKERMAN. Which money?

Dr. SIEBER. The $1.5 million will be—will be looking at the risk factors such as pesticide exposure.

Mr. ACKERMAN. You're saying $1.5 in addition to this list that I've read of——

Dr. SIEBER. No. This $1.5, which is on the list, per year.

Dr. BLAIR. Would you meet——

Mr. ACKERMAN. I, just help me to understand this, and help all of us to understand this, but, for example, Dr. Frodenheim's work for $194,000, up at the State University in Buffalo, environmental and genetic determinants of breast cancer, what will the application be—what will that determination of Dr. Frodenheim's work relate to Long Island?

Dr. SIEBER. The study that Dr. Kaplan is doing is directly applicable to Long Island, since it's taking place here. It will be looking at exposures taking place——

Mr. ACKERMAN. Yes, that's—that's $345,764.

Dr. SIEBER. Right.

Mr. ACKERMAN. Is that going to give us the answers to the question on why women in Nassau County have a 16 percent greater death rate?

Dr. SIEBER. That's what it's designed to do.

Mr. ACKERMAN. And you're going to do that for $364,000?

Dr. SIEBER. Per year.

Mr. ACKERMAN. Per year?

Dr. BLAIR. Five years.

Dr. SIEBER. For 5 years.

Mr. ACKERMAN. Well, I would put Dr. Kaplan up for every award on the planet if, if that could be done for that amount of money, and put him in charge of every health agency that we have.

I don't understand how we can do that for $345,764 a year, to come to a conclusion of why breast cancer on Long Island has such a high rate, as compared to the rest of the country. This was not the intent of our legislation.

Dr. SIEBER. I'm sorry. It was my understanding that the intent of your legislation——

Mr. ACKERMAN. I'm sorry. You're going to have to speak a little louder or pull that a little closer.

Dr. SIEBER. It was my understanding that the intent of your legislation was for risk factors associated with the high risk, high levels of breast cancer on Long Island be evaluated, current and past exposures to things like pesticides, automobile and airlines emissions, toxic wastesites, and electromagnetic frequency radiation, and that's exactly what, what these studies, in their aggregate, will be evaluating.

Mr. ACKERMAN. For $345,000, you think you can evaluate the effect of electromagnetism on breast cancer?

Dr. SIEBER. Yes, the Kaplan study is designed to evaluate the effects of organochlorine, pesticides, and electromagnetic radiation on breast cancer risk.

Mr. ACKERMAN. And that will determine why it's higher on Long Island than in other areas?

Dr. SIEBER. We're hoping that it will.

Mr. ACKERMAN. That's absolutely mind-boggling to me. Absolutely mind-boggling. [Applause].

With—with a budget of $2 billion a year of taxpayer money, in a concern of the entire Congress, in a year of the woman, in a year that all of us who are not women have been so sensitized to the importance of doing research in this field, that we are being placated with $345,000 out of a $2 billion budget? I, I don't know how you operate an office for, for that kind of money. That's one person, with—I mean, you know.

Tell me about it. Tell me about how this is going to happen.

Dr. SIEBER. In their aggregate——

Mr. ACKERMAN. That's $1,000 a day.

Dr. SIEBER. In their aggregate, the six studies will, I believe, provide important information that will be directly applicable to the rates of breast cancer on Long Island, in relation to exposure——

Mr. ACKERMAN. No. What these studies are going to do, apparently, is they're going, they're going to come up and say, the risk factor of this kind of pesticide and that—which are all important, and I'm not playing that down. That's important, but how do these all interplay on—Long Island? Because they use these hair tonics and pesticides and nuclear plants and automobiles, and there's airplanes in Chicago, too, I've heard.

Now, why—why is it so much higher on Long Island is the question that we've asked. Has something happened here, on Long Island, that's happened in other places to varying degrees, that caused the rate of incidence to be so outrageously high? That's what we're trying to find out.

Dr. SIEBER. That's one of the reasons——

Mr. ACKERMAN. For $1,000 a day, I don't think you're going to do that.

Dr. SIEBER [continuing]. One of the reasons why we convened the meeting of the six institutions that will be carrying out these studies is to make uniform the types of exposure questions that will be asked on the questionnaires and the type of exposure dosimetry that we'll be trying to do, so that we can compare exposures and questionnaire information from individuals on Long Island, where the breast cancer rates are——

Mr. ACKERMAN. Yes, but there has to be historical investigative work in these, in these kinds of areas. I mean, those of us who are involved on our side of it, we can't even do polling for $1,000 a day of what people think at this very minute, let alone find out what happened 4 years ago, 9 years ago, 20 years ago, and 60 years ago.

We're not going to be placated by being told you're going to have somebody in some university on Long Island, as great as that person is, and we know that to be true, solve the problem—don't throw us that kind of a bone. That's not acceptable.

We are serious about trying to find out why our friends and our lovers and our mothers and daughters are dying, and that—that's not going to do it.

This is—this is just more of the same general kind of research that's been going on, although the list you've given us has to do with pesticides and the environment and breast cancer, it has nothing to do, necessarily, with what's happened on Long Island over the past 50 years.

Dr. SIEBER. What we're planning to do is take this exposure information and its questionnaire information, from individuals in Long Island, where the rates are high, and compare it with similar——

Mr. ACKERMAN. How many people will it take for you to talk to the women on Long Island and find out their histories and the histories of their mothers and their grandmothers?

How many people will it take?

How many people will Dr. Kaplan have at Dr. Kaplan's disposal, with $345,000? Where will this office be and what rent will they pay?

I mean, I can't conceive of anything anywhere near what we have asked for taking place for $1,000 a day.

Dr. BLAIR. Congressman, the design of the study is that you enroll people who have the cancer so you can learn a lot about what's happened to them and what environmental exposures are, and so forth——

Mr. ACKERMAN. Is that something new, or is that something we've been doing for 10 years?

Dr. BLAIR. Well, we haven't been doing it with environmental risk factors for breast cancer. Most of the studies that have been done have looked at genetic factors, hormonal relationships, and so forth. This is new. This is very new, and the idea is, you take—the design of the study, you take people who have breast cancer, assembled on Long Island, and from these other sites, elsewhere, but from Long Island, then you take a sample of the population. You let the sample stand for what the baseline is, and then you see if there's a difference between the people who got cancer from the people who didn't——

Mr. ACKERMAN. I'm——

Dr. BLAIR [continuing]. And that's, that's a standard, that's the design that gives you the best opportunity to identify risk factors in this situation.

Mr. ACKERMAN. You know, I'm glad this is being done, but I'm sorry that this is new. I mean, it just seems so logical. I mean, if it's new, it's a day late and $1 short, and you multiply that by whatever factor you think is important, but it's not $1,000. It's a heck of a lot more than that.

The kind of study that we have been asking for and hoping for, and I can't necessarily put a dollar figure on it, but $345,000 is not it.

Dr. BLAIR. Per year.

Mr. ACKERMAN. Per year, $1,000 a day is not going—is not going to find out this information.

Dr. BLAIR. It's in—from the design that has been put together with this study, the——

Mr. ACKERMAN. How many researchers will be involved in this project?

Dr. BLAIR. I don't really know how many there are on this one. Typically, in a study of this type, it takes five or six interviewers to interview the, both the cases and the controls. You have scientists from your principal investigators. You have to have data editors and keyers. This is a significant effort.

Mr. ACKERMAN. And you could do that with $345,000?

Dr. BLAIR. Yes.

We don't—we don't——

Mr. ACKERMAN. I want to be a believer, doctor——

Dr. BLAIR. We don't do——

Mr. ACKERMAN. I really want to be a believer, but you're making it hard.

Dr. BLAIR. We don't interview everybody in the population. The key element is to compare what's different about people who got cancer from people who didn't, and that's how you uncover what's going on.

Mr. ACKERMAN. And what you, what we've come up with before are some of the people that have gotten it stand in front of candles on Friday night. You know, I—maybe there's a correlation between that.

But I, I want to know what they've eaten and what they've breathed, and the food that, that they've been consuming, and all those other things that may make it different than——

Dr. BLAIR. Exactly. And that's what's in this study.

Mr. ACKERMAN. I, I don't want to——

Mr. TOWNS. Let me ask you, first of all——

Mr. ACKERMAN. I don't mean to belabor this, but——

Mr. TOWNS. No, I think, I think your point is well taken and I think it's a very important topic and that's one reason why I did not cut you off. I think we should talk about it. It's a very, very important issue, because we're talking about lives, it's nothing to take lightly.

But, let me assure you gentlemen from the fifth district in New York, that we have oversight responsibility for this, and you can be assured that we're going to take a look at what they're doing.

I must admit that, when you look at New York, the costs of things, to do business in New York, itself, is very, very expensive. I'm even concerned about it, as I look at health care reform, because of the fact that it's just expensive. This is an expensive region. It costs more to live in New York than it does in Money, MS. It costs more to do research in New York than it does to do it in Money, MS, and other places, because of rent, telephone, and you name it, and I can go on and on talking about the costs of it.

And I must admit that, when you put it in that perspective, the dollar figures you've mentioned don't look like a lot. They really don't.

I want to assure you Congressmen, that we will make sure that this study is not being done in a manner just to placate you but will have some real, real answers.

So, you can be assured of that and I can understand your concern and I share your concerns.

Mr. ACKERMAN. I appreciate that, Mr. Chairman, because you well know that it costs each and every one of us that are sitting on this panel today more than $345,000 a year to run our office, and we don't employ rocket scientists, necessarily—great people that work 3 times as hard as anybody else I know, but they don't get paid anywhere near that kind of money, and it costs us more than that to run an office.

Dr. BLAIR. I can assure you our goals are exactly the same. We want to do the study that gets the answers you need and do it well enough so that when it's finished, we know—we know what's happening, so our goals are exactly the same.

Mr. ACKERMAN. We would encourage you—and I don't want to belabor this, because we have other panels, I know, Mr. Chairman. Other people have other obligations today.

But, we want to encourage you, in the strongest possible way, to go back and take a look at the study of the things that we have suggested, in the authorizing legislation, and figure out, realistically, what you think it's going to cost to do that kind of a study, instead of saying, well, we're just going to fund these six studies. You would have funded these six studies, as likely or not, without the kind of legislation that we put together. This is—this is proforma kind of stuff, except for the first time, you're looking at environmental risks, which we're happy about.

Dr. BLAIR. I think, Congressman, this really was at the instigation of Congress, but we will take your advice. We will go back and look carefully. We hear you.

Mr. TOWNS. Thank you very much.

Mr. ACKERMAN. Thank you, Mr. Chairman.

Mr. TOWNS. Congressman Fazio—Lazio.

Mr. LAZIO. Different Congressman.

Mr. TOWNS. Different Congressman, altogether.

Mr. LAZIO. Different coast.

Thank you, Mr. Chairman.

The rage that you hear in Congressman Ackerman's voice is shared by me, frankly, over the inadequacy of this. And, perhaps, even moreso, because I think I'm hearing that you think this can be done relatively inexpensively and relatively easily.

And, the question is, if that's so, why have you waited to this point to do this? Why wasn't this done 5 years ago, and why are you not equipped to be able to determine which areas of the country are impacted so negatively so you can proactively go into those areas and begin to formulate these studies before it takes congressional panels and public outcry to get to the point to urge you to move on this?

Dr. BLAIR. We do try that, Congressman, but that doesn't mean we're always successful in getting to the right place. But, for example, we have lots of studies in different areas of the country, focusing, because we think there are high levels of exposure to pesticides, radon, and so forth, and that's how we go about deciding what to do.

Mr. LAZIO. Well, what went wrong here?

Dr. BLAIR. Well, we, the issue of environmental exposures in breast cancer is a relatively new thing, brought about often, primarily because of grassroots groups, and this, this has been a recent phenomenon that has driven the interest, I think.

And, the scientific community is responding to that. The, for example, the studies by, at Mount Sinai on DDT and breast cancer were only 1 year ago. We've got four or five different things, now, at the Cancer Institute where we think we can followup on that with special groups, special populations, minority populations that had exposures to DDT, that came about directly because of that. We moved quite quickly on this. It doesn't mean that we can't do better sometimes, but we go about it in exactly the way you suggest.

We look for high-rate areas, we think about exposures that might cause them, see how we can do a study that will really help us uncover that information. But we can't do everything. We have to make choices, and sometimes, maybe, we make the wrong one.

Mr. LAZIO. There's got to be something wrong, statistically, with the way you're identifying areas, if an area like Nassau and Suffolk, with the mortality rates that we have, is not one of those being identified. And, I don't mean to be righteous or anything like that, because I know you care about lives as much as I do, but obviously there have been a number of tragedies that could have been averted, potentially, if you would have been more proactive about this.

I remember, when I was growing up, watching television and sitting at the dinner table, about the identification of the linkage between DDT and those people over in Vietnam who were, who had their health implicated as a result of that.

So, this is not anything new, I think, to the American people, and not new to the scientific community, that there's a link between the environment and certain diseases.

So, I just am struggling to find out what it is that went wrong here, and exactly how you identify communities or don't identify communities—I guess that's what happened here—that have these kinds of problems.

Dr. BLAIR. We—we actually go about it in just the way you suggest. I'll just give you some examples.

In the mid-1970's, the Cancer Institute published a series of maps that some of you may have seen, that plot the risk of cancer in color-coded form, around the United States, and one of the things we saw was a band of high-rate lung cancer counties along the coast, along the Eastern coast, in South Carolina, northern Florida, and so forth, and we immediately launched studies to try to figure out why there were excesses in that area. And, actually, we get surprised sometimes.

This is why you have to cast the net broadly, to make sure you don't miss something that you hadn't thought about. When we looked at the industry that was in those areas, at that time, it's the paper industry. So, we thought, "Aha," the paper industry. You know, they use a lot of chemicals, and so forth. When we did the study, it wasn't the paper industry. It was the shipyards, asbestos in shipyards. They don't even exist there, anymore, but they did during World War II, and we were seeing the lung cancer excess that arose 30 or 40 years earlier, from the short period of time when they built ships in World War II.

And, that's the way we try to design the studies, to look at not only what exposures are there now, but those that were there in the past, to try to get at the environmental causes.

Mr. LAZIO. When was that grant let for the $300,000? What's the relative timeframe over here for these——

Dr. BLAIR. It's been within the last half of year, right, last 6 months, when the grants were let.

Dr. SIEBER. Last month.

Dr. BLAIR. Last month.

The grant—the review process takes longer. The RFP goes on the street——

Mr. Lazio. This was, essentially, done before there was any action in the conference committee between the House and the Senate that——

Dr. Blair. What we did is we tried to insert the opportunity to do studies on Long Island, in this area where we had had, there had been congressional instigation to study breast cancer, in general, in the Northeast. And, even though there was this difficulty about budget authorization and appropriation, we thought, we believed we could get a head start on this process by inserting Long Island into that, and that's what we did, and it paid off, because we let the grant almost immediately when we, when we were allowed to.

Mr. Lazio. So, would you agree that it would be somewhat deceptive for people to be led to believe that this is somehow a new initiative that came as a result of the appropriation?

Dr. Blair. No, because we, we inserted, asked for people to take a special look at Long Island, knowing that, even though there was some inconsistencies about what we were supposed to do, from Congress, we were trying to respond to that in taking advantage of this——

Mr. Ackerman. Will the gentleman yield?

Mr. Lazio. Yes, I will.

Mr. Ackerman. There was no inconsistencies in the signal sent by Congress. This—this delegation here, and you've seen six Members of the House of Representatives, representing different counties, different parts of our city, and a U.S. Senator come down. We were able to convince every single one of our colleagues in the House of Representatives, during the authorization period, to do a specific study having to do with Long Island.

Dr. Blair. We inserted it——

Mr. Ackerman. All right. Yes, you inserted it. You tossed us a placebo is what you did.

During—during the budgetary process that we go through, the difference between the authorization and the appropriation procedures, because of the dollar amounts involved and the huge scope that we anticipated and that the rest of the Members of Congress anticipated, during the authorization period, were set aside so that money would not necessarily have to be reappropriated and earmarked for this and the discussions involved a commitment from your agency that this study would be undertaken from discretionary funds already authorized and appropriated to your agency. Now, what you've done is you've tossed us a $345,000 smokescreen to make us think that Long Island is going to be able to now find out what are the environmental causes of cancer that have impacted the women here, in particular, in a much greater fashion than they have elsewhere.

That is not acceptable to us, and if, if we have to go back to review this with the rest of the Congress, we will have to do that. But, coming up with adding to your list a $345,000 study—and I've read the language very carefully as we've sat here—has nothing to do with Long Island. You're referring to the Northeast. I mean, this is a charade.

We need a study specifically for Long Island. [Applause].

Dr. BLAIR. There is——

Mr. ACKERMAN. And—No, I'm afraid there isn't. You have a grant of $345,000 to a superb researcher on Long Island. You don't have a specific study that warranted the full attention of the U.S. House of Representatives on this problem. And, we were focused on this. And, I can't tell you, we're more than disappointed. We're p-o'd. [Applause].

We want this matter fully addressed, and I have the greatest of respect for each of you on the panel. You are doing your job and you're renowned experts in your field, and I mean that sincerely. But, those, those within the agencies are going to have to understand that we take this very, very seriously. And, we're going to have a study here. This is not it. Not for $345,000 of a $1.5 million Northeast-in-general-whatever—whatever you want to call it. This is not what we're looking for.

Thank you, Mr. Chairman.

Dr. BLAIR. I can assure you that Dr. Broder will take it seriously, too.

Mr. LAZIO. I yield back at this time.

Mr. TOWNS. Thank you, very much. I think that the point has really been made that, and when you look at a $2 billion budget, you know, I think that it is a very, very serious situation here.

Congressman Hochbrueckner.

Mr. HOCHBRUECKNER. Thank you, Mr. Chairman.

Yes, obviously our colleague, Congressman Ackerman, has made the point that we really are looking for a Long Island study. That should be clear, and certainly Dr. Broder promised that and we expect it.

Now, obviously, we all recognize, too, that, you know, there is a law of diminishing returns, where increasing funding produces no additional result, but clearly, you know, there's no way you could convince us that $345,000 a year for 5 years is going to do it. That's just—it doesn't make sense. It doesn't fit. So, that's obviously something we need to take up with Dr. Broder and, you know, we don't need to beat you up on it any further.

But it seems to me, an area that you do have to be concerned about is the fact that, for example, in last year's and this year's defense budgets alone, there's close to $15 million dedicated to breast cancer research. So, I guess my question for you both would be what is your plan in terms of—on second thought. You don't have to answer. Let me just tell you what I think you ought to be doing, because you may not have thought this out.

Clearly, there's a tremendous amount of money in NIH, CDC, other areas. We have local groups that are mapping, geographically, where people who have breast cancer live. There's a tremendous amount of local data that is available and, clearly, that plus this $250 million in the defense budget in the last 2 years for breast cancer, there has to be a coordination. There are probably many things going on across this country, in a variety of areas, funded in many different ways, that all contribute to the result of reducing breast cancer.

So my question is, do you have, are you working on any kind of a master plan to assure that all of this comes together? Because, it doesn't make too much sense if you do one piece of a local study here but miss some big pieces that are happening nationally that could contribute ultimately to the goal which is to reduce breast cancer in the country and, certainly, to specifically work to reduce it here.

So, I assume you will be coordinating that kind of effort?

Dr. BLAIR. There is coordination, Congressman, and Dr. Sieber will speak about it, at NIH.

Dr. SIEBER. As you may know, on, about a week ago, about 2.6 million signatures were presented to President Clinton, on a petition to——

Mr. HOCHBRUECKNER. Yes, as a matter of fact, several women in this room were there, at the White House, when this was done.

Dr. SIEBER. Right.

On that day, also, the President made that day National Mammography Day, and at the same time, he tasked Secretary Shalala and Surgeon General Elders with responsibility to develop a breast cancer action plan for the Nation. That plan is under development by NIH and other HHS agencies right now. It will be presented to the President at a meeting which we believe will take place on December 14.

Elements of the plan will be taken from a report made by the breast cancer subcommission of the President's cancer panel, which developed its recommendations and its report over a series of meetings that took place over about 13 months. So, these elements will be incorporated into the action plan, as will other recommendations from other parties, including the breast cancer activist groups.

Mr. HOCHBRUECKNER. OK, now, with regard to Dr. Broder's comprehensive study for Long Island, that we were promised, are there further plans that will come forward, or are these six projects, in essence, the plan?

Dr. SIEBER. No. These six projects are, really, only the beginning, and funding for studies in this area will be increased over time.

I, I should say that some of the exposures, as potential risk factors, are relatively easy to measure. We have good tools for doing that, right now, and are, in fact, doing it. For example, for pesticides and other organochlorine compounds in serum and tissue.

But, for other types of exposure of high interest—for example, to electromagnetic radiation and exhaust from airplanes and automobiles, we don't have any biological measures of dose. So, we're going to have to work these out as we go along. The technology is simply not there. The methodology is not there. We need to develop it, and we need to develop it specifically for these studies.

So, we don't want to put a tremendous amount of money into utilizing a methodology or an analytical test for exposure if it's not going to work right. So, we want to get these methodologies worked out in these groups, up front, before we apply them on a larger scale.

Mr. HOCHBRUECKNER. OK, well, I can accept that, but when you talk about $345,000 for 5 years, let's assume, you know, that you could do it for that money. I would assume, since these are six programs that are in place now, and they vary in time duration, do you and when do you expect to have a plan that lays out the 3- to 5-year program, in terms of what you think must be accomplished in order to answer the basic question, which is why is breast cancer higher here on Long Island?

Dr. SIEBER. There will be continued meetings amongst the six investigative institutes, as well as NCI and NIEHS staff, to map out plans as we go along. In addition to that, an advisory panel is being put into place, which will oversee the governance and coordination of all of these projects and develop an overall plan for expanding the projects, as we acquire information, as we go along.

Mr. HOCHBRUECKNER. OK, so, then, the plan will be developed dynamically over time, but as far as right now is concerned, these six projects are the plan.

Dr. SIEBER. We're just starting on this. We just started this last month. It's brandnew.

Mr. HOCHBRUECKNER. OK, but when do you expect to have a meeting to lay out the next steps?

Dr. SIEBER. I believe the next meeting of the investigators involved will take place in about 2 months.

Mr. HOCHBRUECKNER. Thank you, Mr. Chairman. I'm sorry I extended my time.

Mr. TOWNS. It's no problem. I'm being very generous with everyone's time because this is so important. That's why this subcommittee is having the hearing on Long Island, because we feel that this is something that must be addressed.

What I'm going to say to the members, to my colleagues here, is that maybe what we need to do is have a meeting with Dr. Broder, because based on the information that's come forth this is not sufficient, so I think that I would suggest that we have a meeting with him, to share our concerns.

And let me just say that I have one other question, and I was trying to get the information real fast. And that's the reason why, Dr. Blair, I wanted to personalize it, because I felt that it would come back a lot faster if I did it that way.

But, I still am not quite pleased with the answer to the question that I raised before with respect to chemicals and other industrial products that have been shown to cause cancer in laboratory animals, shouldn't we side with caution and limit their use on the market until we know for certain?

Dr. BLAIR. That, actually—it's a regulatory question, Congressman, of which——

Mr. TOWNS. No, the information is not the question I'm raising with you. From a scientist, you know, to a person who's not a scientist, I want to know in terms of your viewpoints on it.

If we see—we've seen this in animals, and we've gone and we've given this to animals and animals have gotten cancer and we've seen it shouldn't we then become cautious and not use it?

Dr. BLAIR. Well, I think the caution is built into the process. When that happens, it typically kicks in a lot of other things that happen throughout the scientific and the government community, to look, to focus really strongly on that particular compound.

As you well know, the process of deciding what to do and what to use is, is a political risk-benefit decision, but the minute there is something that is carcinogenic in laboratory animals, it starts the process.

You might want to ask, because often where this comes from is the national toxicology testing program, that comes from the National Institute of Environmental Health Sciences.

Mr. TOWNS. Right.

Dr. SCHONWALDER. Yes. The National Toxicology Program comprises the largest publicly funded bioassay program that exists and the results of this program are utilized by regulators because of the scientific constraints, high doses, as you know, in order to simply do a test, can this chemical cause cancer or not.

When the test comes up positive and is so rated, the information is then passed on to the regulatory agencies and they go through, then, the process of risk management, of what to do about it.

So, you are correct that that's a first yellow flag or red flag, whatever you want to call it, but then the process has got to complete itself in the regulatory agencies, where they take a look at issues of extrapolation from high doses to low doses, of human exposures, and risk management.

That's beyond the research agency's purview and into the regulatory agency purview, what actually comes out as far as regulations.

Now, can I add one more thing——

Mr. TOWNS. Sure.

Dr. SCHONWALDER [continuing]. On outreach and education, because it is a very important point to the National Institute of Environmental Health Sciences.

We have some 17 Environmental Health Sciences Centers throughout the country, 3 of them in New York State, and just last year, each of those centers was asked to develop a community, public and community outreach effort, within the constraints of the budget that they have with their centers.

So, they are starting to do that, and one of the things that the public citizen can do is to call these centers—one is at Mount Sinai, where Mary Wolff works, and one is at the New York University Medical Center, and one is up in Rochester—and simply pose these questions.

Second, we feel that the medical community, physicians and nurses, need to know more about environmental health and the potential for environmentally induced diseases, and we have a program that has been running some 3 years now in order to support senior medical faculty staff at medical schools to specifically put into the curricula of new medical students these issues about environmental health and what they should know about it. Heretofore there was nothing in the curriculum for them to study that.

And, finally, I want to mention two publications. The New York University Center just published, Prentice-Hall, a very nice volume which I've seen. It's called "Staying Healthy in a Risky Environment," and perhaps this goes back to your first question on how the public can get some more information to judge itself, and that's a lay book. It's filled with explanations of what these particular diseases are, what one can understand about it, and who to call to get more information. So, that is a resource.

And, finally, our Institute publishes Environmental Health Perspectives, which also has a news and update of what's going on.

And so there are ways that the public citizen can get a bit more informed, to try to make some personal decisions within this field.

Mr. TOWNS. It's not enough however.

Dr. SCHONWALDER. You are right. It is not enough. We're just making a start.

Mr. TOWNS. Let me just thank all three of you. Sometimes when agencies testify and we feel very strongly about certain issues you're seen as the messenger, and sometimes the messenger gets shot even if you don't have direct responsibility for the issue.

So, we want to let you know that we will go to Dr. Broder, because what you said is just, is something that we cannot accept.

Those of us who worked very hard on this issue thought that Long Island was getting direct funding that would address the problem on Long Island.

I served on the Health Committee in the U.S. Congress, when this issue came up initially, and we thought that that's what was happening, and I tell you now that I must admit that I am disappointed, very much disappointed over the fact that NCI is not doing what we thought it was going to do. One of the reasons why we're having the hearing here on Long Island today is, to make certain that NCI does conduct this study.

So, thank you very much for coming and testifying, inasmuch as we're not happy with a lot of things that were said.

Thank you.

I would like to call the next panel to the witness table. Geri Barish?

Ms. KRITCHEK. I'm—there's a substitute for her, Fran Kritchek.

Mr. TOWNS. OK.

Ms. KRITCHEK. I'm Fran Kritchek. I'm substituting for——

Mr. TOWNS. One second.

Ms. KRITCHEK. OK, I'm sorry.

Mr. TOWNS. And Miss Karen Miller, the Huntington Breast Cancer Action Coalition.

So, why don't we start with you.

STATEMENT OF FRAN KRITCHEK, COPRESIDENT, 1 IN 9: THE LONG ISLAND BREAST CANCER ACTION COALITION

Ms. KRITCHEK. I'm Fran Kritchek. I'm substituting for Geri Barish. We represent 1 in 9: The Long Island Breast Cancer Action Coalition, one of those advocacy groups that has pushed so hard to get this hearing processed. And, I thank Congressman Ackerman and Congressman Lazio and Congressman Hochbrueckner for their tremendous support. Long Island Congresspeople have been tremendously supportive of this and all the local legislators, too, and for that I give them tremendous thanks.

My testimony might be highly repetitive, because everybody here seems so very well informed about statistics. I'd like to tell you that I'm a breast cancer survivor. I was diagnosed with breast cancer in 1987, December 1987. I've hit the 5-year mark, and 5 years is supposed to be the time when you say, "Wow, I've made it, I'm cured."

No one who has breast cancer can state that. People who have breast cancer walk around with a time bomb in their system, always waiting to explode, holding their breath, hoping that it won't.

We have already been victimized. What the advocacy groups are fighting for is for the future generations.

I happen to be a resident of Long Island, a Long Island that has the unfortunate nomenclature. It is called "The Breast Cancer Capital of the World." That is how we view it. That's how other people view it around the United States. Every year, on Long Island, 1,800 women get breast cancer. The incidence of the disease is 16 percent higher than the State average in Long Island's Nassau County, and 12 percent higher than the State average in Long Island's Suffolk County. Higher than Queens. Higher than Westchester. Higher than Brooklyn. And higher than Manhattan. And, every year, the women of Long Island ask themselves: "Why?"

I'm not a scientist and we're not scientists. We don't know why, and the 182,000 women who get breast cancer every year in every one of the United States don't know why, either. And the 46,000 women who die each year of this disease, and their families don't know why either.

Did you know that for every woman who gets breast cancer, at least three other people—spouses, children, parents, employers—are seriously affected? Most times, that number is much larger, more like five or six. We have thought of breast cancer as a woman's disease. It not only affects the women. It affects every aspect of our society.

Did you know that, by the end of 1990, 1.5 million were diagnosed with this disease? Today, this National Cancer Institute says that 1 out of every 8 women will get breast cancer in her lifetime. What will the rate be in the year 2000; 1 in 3; 1 in 2?

As I speak, breast cancer is diagnosed every 3 minutes in this country. Every 12 minutes, a woman in this country dies of breast cancer. Of the women diagnosed with breast cancer, 80 percent do not fall into the typical profile or have any of the risk factors for breast cancer.

Increasingly, with a greater and greater vigor and anger, women are asking themselves why the Federal budget is well over $1 trillion, but funding for breast cancer research is only now, with the help of a very few legislators, starting to increase from $80 million in 1990, to little more than $300 million this year.

But, let's not forget that this number represents less than $1 per person.

We have been told that early detection is our best hedge against mortality. "Get a mammography," has been the only advice we've received in the past 10 years, and yet, women are dying of breast cancer today at the same rate they did in 1950, and the basic methods of treatment—cut with a scalpel, poison with chemotherapy, and burn with radiation—have not essentially changed in the last 40 years.

This is unacceptable.

But now, for the first time, we think we may be getting close to an answer, or several answers. On Long Island, we think we have an electromagnetic field problem. We know we have a water problem. And we're very sure we have a specific pesticide problem. These are not our problems, alone. They exist in every part of the country. There is no doubt that scientists will ultimately find that breast cancer has something to do with genes. In fact, they have already discovered that chromosome 17 has a genetic specificity for early breast cancer.

But, we may find that the estrogen that women have been taking into their systems over the past 30 years—in birth-control pills, in the meat they've eaten that has been fattened up with hormones, and the pills they are given after menopause—will play a part.

And, we already know that contaminated water, laden with toxic and carcinogenic substances, is clearly related to grave human health problems, including cancers.

Over the last 30 years, the Long Island potato industry has used millions of gallons of various chemicals with tongue-twisting names such as methyl—and I can't say it—isothiocyanate. Most of these chemicals are known by their initials, such as DBCP, TCTP, EDB, and others.

In 1 year, 52 out of 107 golf courses on Long Island reported using approximately 200,000 pounds of bulk dry chemicals and close to 9,000 gallons of bulk liquid formulations. This is 4 to 7 times the amount used by agriculture on per pound basis per acre. Two of the chemicals—dacthal and chlorothanlonil—have been detected in the Long Island ground water.

There are 129 past or present known toxic waste dumps on Long Island, and a 1987 report ranked Suffolk County as No. 3, and Nassau County as No. 6 in the State, having the highest number of toxic wastesites. In 1990, a report identified 80 manufacturing facilities throughout Long Island that reported releasing 4.3 million pounds of 51 toxic chemicals into the environment in only 1 year.

Women have always been caretakers of our society. We now must be the decisionmakers. Grassroots organizations are being heard. We will not stop. Huntington, West Islip, all the grassroots organizations that are developing are being assertive. We will not stop until our pleas are heard for more research, for early detection, and prevention.

I am tired of losing my friends and colleagues to this dreaded disease, but we are also so interested in prevention. I understand that there are certain banned carcinogens in our country. Are we going to import food products from other countries and not have regulations about the carcinogens that other countries use? I am concerned about that, and current legislation is deciding whether we will import things from Mexico that might impact upon our health. We are concerned.

We are tired of the blame the victim syndrome. It is not our fault we get breast cancer. We don't deny the genetic component, but there is something out there that exacerbates the disease, and as you heard today, it's certainly multifactorial. We can't point to one thing. We don't know it. It may be pesticides. It may be the electromagnetic fields.

We are women who have many questions. What we really want is the government to address this issue, hands on, and attempt to come up with answers so that we will no longer lose creative, talented mothers, sisters, grandmothers, aunts, and, yes, uncles—because men get breast cancer, too, and the rate is increasing; it was 1 percent 2 years ago and it is now 2 percent of the men who get breast cancer—to this dreaded disease.

Today, with the research of Dr. Mary Wolff and the data from Israel, the studies by Dr. Devra Lee Davis, that promise to look further into the pesticide-breast cancer connection, and with organizations such as 1 in 9, an advocacy group, and West Islip and Huntington, and the American Cancer Society, and Greenpeace, that's promoting research into the organochlorine relationship to cancer, we are putting this urgent subject on the front burner of our Nation's consciousness.

I feel that the day will soon come when we will be assured that our daughters and granddaughters will not have to dread this savage disease, that they will not have to lose their hair from chemotherapy, they will not have to be carved up by surgeons. Our daughters and granddaughters will certainly have problems of their own, but if people like me and my group have anything to say or do about it, these problems will not include breast cancer.

I want to announce to you that on November 15 and 16, 1 in 9 is sponsoring a scientific symposium. This was before the CDC decided to come in and investigate Long Island—hopefully, Long Island—and so we invited 22 scientists from around the United States to address the issue of environmental concerns. Dr. Devra Lee Davis and Dr. Susan Love are chairing this symposium, and I cordially invite you to Adelphi University, from 9 a.m. to 5 p.m., Monday and Tuesday, November 15 and 16. I have some flyers that I'd like to distribute.

I will also say that we will constantly be the watchdogs. We will constantly be the watchdogs. We certainly will watch the people in Congress, with your help, because Long Islanders have been so supportive of us, but other Congresspeople have to be watched. We will watch the National Cancer Institute and the National Institutes of Health. They have a wonderful plan, but somehow they're not really addressing the issue, and I applaud Congressman Ackerman for his analysis of the situation and putting them on the hot seat, because they deserve to explore this issue for the Long Islanders who are tremendously concerned.

[The prepared statement of Ms. Barish follows:]

My name is Geri Barish and I have had breast cancer in 1986 and 1987. I also have the unfortunate distinction of coming from what has now become known as "The Breast Cancer Capital of the World"-Long Island, New York.

Every year on Long Island, 1,800 women get breast cancer. The incidence of the disease is 13.5 percent higher than the state average in Long Island's Nassau County and 12 percent higher than the state average in Long Island's Suffolk County. Higher than Queens. Higher than Westchester. Higher than Brooklyn. Higher than Manhattan.

And every year, the women of Long Island ask themselves "Why?"

We don't know why. And the 182,000 women who get breast cancer every year in every one of the United States don't know why either. And the 46,000 women who die each year of the disease leave families that don't know why either.

Did you know that for every woman who gets breast cancer, at least three other people (spouses, children, parents, employers, etc.) are seriously affected? Most times, that number is much larger, more like five or six.

Did you know that by the end of the 1990s, 1.5 million women will be diagnosed with this disease? Today, the National Cancer Institute says that one out of every eight women will get breast cancer in her lifetime. What will the rate be in the year 2000? One in three? One in two?

Breast cancer is diagnosed every three minutes in this country. Every 12 minutes, a woman in this country dies of breast cancer.

Eighty percent of women diagnosed with breast cancer DO NOT fall into the "typical" profile or have any of the "risk factors" for breast cancer.

Increasingly, and with greater and greater vigor-and anger-women are asking themselves why the federal budget is well over a trillion dollars, but funding for breast cancer research is only now-with the help of a very few legislators-starting to increase from $80 million in 1990 to a little more than $200 million this year. But, let's not forget that this number represents less than one dollar per person!

We have been told that early detection is our best hedge against mortality. "Get a mammography" has been the only advice we've received in the past 30 years. And yet, women are dying of breast cancer today at the same rate that they did in 1950. And, the basic methods of treatment-cut with a scalpel, poison with chemotherapy and burn with radiation-have not essentially changed in the last 40 years. This is unacceptable!

But, now, for the first time, we think we may be getting close to an answer-or several answers.

On Long Island, we think we have an electromagnetic field problem. We know we have a water problem. And we're very sure we have a pesticide problem. These are not our problems alone; they exist in every part of our country.

There is no doubt that scientists will ultimately find that breast cancer has something to do with genes; in fact, they have already discovered that chromosome 17 has a gene for early-onset breast cancer.

And we may find that the estrogens that women have been taking into their systems over the past 30 years-in birth control pills, in the meat they've eaten that has been fattened up with the hormone, in the pills they are given after menopause-will play a part.

And we already know that contaminated water, laden with toxic and carcinogenic substances, is clearly related to grave human health problems, including cancers.

Today, with the research of Dr. Mary Wolf and the data from Israel and the studies by Dr. Devra Lee Davis that promise to look even further at the pesticide-breast cancer connection-and with organizations like 1 in 9, A.C.S., and Greenpeace putting this urgent subject on the front burner of our nation's consciousness-I feel the day will soon come when we will be assured that our daughters and granddaughters will not have to dread this savage disease, they will not have to lose their hair from chemotherapy, they will not have to be carved up by surgery.

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This is 4 to 7 times the amount used by agriculture on a pound per acre basis. Two of the chemicals, Dacthal and Chlorothalonil, have been detected in Long Island groundwater. There are 129 past or present known toxic waste dumps on Long Island. A 1987 report ranks Suffolk County as number 3 and Nassau County as number 6 in the state as having the highest number of toxic waste sites. In 1990, a report identified 80 manufacturing facilities throughout Long Island that reported releasing 4.3 million pounds of 51 toxic chemicals into the environment in only 1 year.

Women have always been the care takers of society, now we must also be the decision makers.

I will not stop my plea for more research for early detection and prevention. I am tired of losing my friends and colleagues to this dreaded disease.

In 1974, my son was diagnosed with Hodgkins disease. He was 13. In 1976, I lost my mother from Breast Cancer. She was 65. One year later, I lost my father at the age of 69 from a stroke.

On Aug. 1, 1986, I was diagnosed with Breast Cancer. On Aug. 22, 1986, the day I was to start my radiation treatments, my son passed away. He died not of the cancer, but from the damage to his heart and lungs from the treatments. He was rejected for heart and lung transplants because of the extensive damage from the treatments. His death was a result of heart failure-he drowned in his own fluids.

8 months later, I had a recurrence. The same treatments that Michael had in 1974, I was receiving in 1986 and 1987. The final blow came in 1990 when my husband had a stroke. Only to find out because of a clause in our insurance policy so small you needed a magnifying glass to see it--our insurance policy was cancelled. You see, if the provider becomes disabled or dies, you must notify the company within 5 business days.

"Try to get another policy", someone said, just fill out the forms. Only to have rejection, one right after the other. Why? Because I had a pre-existing condition-Breast Cancer. There is so much work needed to be done. We have a long way to go. There are many stories like mine. We must put an end to them. We have to stand side by side. Becoming partners in this fight and be on the same team.

Thank You.

Mr. TOWNS. Thank you.

Ms. Miller.

STATEMENT OF KAREN MILLER, FOUNDER AND CHAIRPERSON, HUNTINGTON BREAST CANCER ACTION COALITION

Ms. MILLER. Chairman Towns, not knowing the proper protocol, and I'm sorry that the NCI just left, the activists here wanted to make a statement for them to reevaluate their design of moneys to be spent by what has happened today at this hearing, and with Congressman Ackerman.

One group here is doing a study on Long Island that I believe would be valued now at about a half a million dollars, in people, rent, equipment, phone, and stamps. Besides doing all the work that we've done as volunteers, we are paying taxes to have the NCI do the proper research, and obviously, at the amount given for the study on Long Island, that is not yet going to be done. I hope that will change.

The Huntington Breast Cancer Action Coalition, which we wanted to address them as well, is doing a demographic survey, as West Islip has done, that was written by a Dr. Roger Grimson, an epidemiologist, biostatistician from Stony Brook, and if NCI was here, we would have proposed, and I hope they get this testimony, that they are welcome to receive the data from this study, as a beginning, and see that it's going to take more than the money they've allocated.

Congressman Chairman Towns, Congressman Ackerman, distinguished panels of the Government Operations Subcommittee on Human Resources: My name is Karen Miller. I'm a Huntington resident, and I was diagnosed with breast cancer in 1988.

I want to take this opportunity to thank Chairman Towns and the Subcommittee on Human Resources for holding this hearing on the possible connections between environmental contaminants and cancer. This issue is especially important to all of us on Long Island because of the high incidence of breast cancer here. Many of us have fought for a Federal commitment to study breast cancer.

The study on the link between cancer, especially breast cancer, and the environmental contaminants and industrial carcinogens on Long Island will include the testimony of the National Cancer Institute, the Public Health Service, government officials and scientists and I want to emphasize to this congressional hearing that it is important to also include the testimony of our Long Island citizens, people who live here and know its history, people who have studied our marine and wildlife.

This hearing validates the concerns and resources of grassroots advocacy groups for breast health on Long Island. All of us need to work together in unity within the scope of this study.

We know that what is not clearly defined from the onset or considered important to study from the beginning will not be part of the study. It is important that this research not just rehash what is known and apply it to Long Island. This study must shed light on this place. Field work and speaking to local people is crucial—like what just took place.

Take the case of the 40-year golden nematode pesticide campaign. Long Island was the only site of one of the most intensive pesticide-use programs ever attempted in the Northeast, perhaps in the country. No harm to the water was anticipated, so the water was not tested for pesticides in the forties, fifties, and sixties. Only when it was found in the water in 1979 did the testing begin.

If the field work had been done at the start, the porous Long Island soil and prevalence of shallow private drinking-water wells would have been recognized, and this could have prevented the use of these pesticides—this program—or at least argued for testing, preventing years of people drinking contaminated water. Even now, the estimates of probable intensity of contamination come from a computer model. Where is the site work?

Legislators, at this point I would like to bring up one point about our food and maybe you can help us eliminate some of the pesticides. We are looking at research on Long Island, and there is proposed legislation by Representative Henry Waxman for testing on all—on all pesticides—for estrogenetic effect. There is pending legislation to repeal the Delaney clause, that keeps known cancer-causing agents out of our processed food. There is a short list of chemicals that cause cancer. Why allow small amounts of these toxins when we know they can be stored in our bodies for future effect? We need to maintain the Delaney clause for processed food and expand it to agricultural law, so that we will not eat it in our raw food. This is within your power to act, now.

Our island has much information to offer to those who truly seek it. Soil borings could speak as well to toxicologists as they do to an archeologist.

Because breast cancer takes years to develop, the environmental history of our island is important. What would tree rings show? What about wildlife and marine life? What, in their decline, should serve as information and warning to us? Speak to Long Island naturalists and fishermen about places and changes in populations since DDT was used here on our island. They will suggest areas to test.

What can native Americans tell us about baseline data? Just look at the food, which used to be healing and helpful. When did our food sources become contaminated? Some people here are experts on the nature of Long Island. We know who the local experts are, and where to find them. Citizens who have been here for a lifetime, who have lived simply, close to the land, and have seen the changes, can help in this study, if we get more money. We need each other to meet this challenge.

There are many other sources of contamination, such as toxic sites and their plumes. Consider the air and the fact that the whole Northeast corridor is a nonattainment area for air quality for Federal standards. Add to this the constant burning of jet fuel, as Congressman Ackerman suggested.

The EPA has set standards of only seven toxic air pollutants while hundreds of chemicals that are harmful to our health and environment remain unregulated. In the laboratory, these toxins are measured one at a time, but in the real world, we are experiencing them together, where they bioaccumulate, and to what extent?

We need to also look at electromagnetic fields.

Until we can immediately put this study forth, grassroots advocates such as the Huntington Breast Cancer Action Coalition have taken it upon themselves to fill the gap. With donations of space, material, computer equipment, and the support of Huntington Hospital, grassroots advocacy groups are trying to connect with individuals and raise awareness on breast health in towns across Long Island.

Approximately 1 year ago, at this site, Huntington Town Hall, a community got together to launch a campaign that may save lives while the studies of the environmental connection to cancer of the breast are taking place. The Huntington Breast Cancer Action Coalition has sent out to all women in Huntington Town who are 25 years and older, a breast health survey, a copy of which is enclosed with our testimony. All women have been asked to respond.

The survey was prepared by a biostatistician and epidemiologist from Stony Brook University, Dr. Roger Grimson, and sent to 70,000 households in Huntington Township. A similar groundbreaking survey was originally conducted in West Islip, and now other communities—Brentwood, Bay Shore, Babylon, Long Beach, Brookhaven, Great Neck, Garden City, to name a few—are starting up with volunteers, all who are passionately concerned citizens.

This survey on breast health, our tool, has a two-fold purpose: To increase awareness of breast health in our community and to encourage women to be comfortable and accountable for their own breast health. This survey has proven to help increase the numbers of women taking advantage of all we have for now—early diagnosis, self breast exam, and mammography. The second reason, to encourage our government to provide the funding necessary to do these studies and to encourage more scientific forums. We are increasingly showing our government the numbers of people who are seeking total, focused, immediate, and unified—as we see here today—commitments that are necessary to find and eliminate the factors that threaten our breast health.

We will be creating a demographic map to show if there are clusters of breast cancer in certain areas, and we will offer the findings for study. Organizations such as the Huntington Breast Cancer Action Coalition have proven that home-based arenas and a familiar face in town encourage more women to be a partner with their chosen health practitioner.

Mr. Chairman, we believe this investigation should determine what chemicals were used on Long Island, and where, so that research can target those chemicals and the chemicals that result from their breakdown. Particular focus should be on organochloride and other estrogen-acting chemicals because of the connection to breast cancer as found by Dr. Mary Wolff. The tragedy of cancer is that it occurs many years after exposure, so the damage is not noted at the onset. There is a sensitive window of vulnerability in the case of hormonal balance. If it is upset, parents might not show it, but the damage could show up in their children.

Breast cancer survivors live with uncertainty every day of their lives. Ours is a disease that can recur at any time, and when it does, we rarely survive.

Yet, despite the loss of hundreds of thousands of women over the last decade, there is still no cure, and the causes are not yet known. Dr. Larry Norton, of Sloan Kettering, recently spoke to us, those of us left here, to keep the issue alive, keep the energy flowing. The more money for research and the more scientists that are attracted to the study of this disease on Long Island, and in attracting the best and the brightest, we will be increasing the possibilities that important discoveries will be made.

Cancer is a disease of civilization. Epidemiological studies tell us that we must know more.

We are your mothers, your sisters, your daughters. Help us to live.

Thank you.

[The prepared statement of Ms. Miller follows:]

CONGRESSIONAL HEARING
on
THE HIGH BREAST CANCER RATE ON LONG ISLAND
and
ITS POSSIBLE ENVIRONMENTAL CONNECTIONS

Huntington Town Hall, Huntington, Long Island, NY
October 30, 1993

Delivered by Karen Miller, Founder and Chairperson
Huntington Breast Cancer Action Coalition.

Huntington Breast Cancer Action Coalition

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Chairman Towns, Congressman Ackerman, distinguished panelists of the Government Operations Subcommittee on Human Resources:

Good Afternoon: My name is Karen Miller; I am a Huntington resident and I was diagnosed with Breast Cancer in 1988.

I want to take this opportunity to thank Chairman Towns and the Sub Committee on Human Resources for holding this hearing on the possible connection between environmental contaminants and cancer. This issue is especially important to all of us on Long Island because of the high incidence of Breast Cancer here. Many of us have fought for a Federal commitment to study Breast Cancer.

This study on the link between cancer, especially breast cancer, and environmental contaminents and industrial carcinogens on Long Island will include the testimony of the National Cancer Institute, the Public Health Service, and government officials and scientists. I want to emphasize to this congressional hearing, that it is important to also include testimony of our Long Island citizens.....people who have lived here and know its history.....people who have studied our marine life and our wildlife.

This hearing validates the concerns and resources of Grassroots Advocacy groups for Breast Health on Long Island. All of us need to work together in unity within the scope of this study.

We know that what is NOT clearly defined from the outset, or considered important to study from the beginning, will NOT be part of THIS STUDY. It is IMPORTANT that this research not just rehash what is known and apply it to Long Island. *This* study MUST shed light on THIS place! Field work and speaking to local people is crucial.

Take the case of the 40-year golden nematode pesticide campaign. Long Island was the only site of one of the most intensive pesticide-use programs ever attempted in the Northeast and perhaps in the country. NO harm to the water was anticipated; so the water was not tested for pesticides in the 40s, 50s, and 60s. Only when it was found in the water in 1979 did the testing begin. *If* the field work had been done at the start, the porous Long Island soil and the prevalence of shallow private drinking-water wells, would have been recognized and this could have prevented the use of these pesticides, this program, or at least argued for testing, preventing years of people drinking contaminated water. Even now the estimates of probable intensity of contamination comes from a computer model. Where is the site work?

Our Island has much information to offer to those who truly seek it. Soil borings could speak as well to toxicologists as they do to an archeologist.

Because breast cancer takes years to develop, the environmental history of our Island is important. What would tree rings show? What about wildlife and marine life? What in their decline should serve as information and warning to us?

Speak to the Long Island naturalists and fishermen about places and changes in populations since DDT was used here on our Island. They will suggest areas to test. What can native Americans tell us about baseline data? Just look at our food, which used to be healing and healthful! When did our food sources become contaminated? Some people *here* are experts on the nature of Long Island. We KNOW who the local experts are, and where to find them. Citizens who have been here for a lifetime, who have lived simply, close to the land and have seen the changes, can help in this study. We need each other to meet this challenge.

There are many other sources of contamination such as toxic sites and their plumes. Consider the air and the fact that the whole Northeast corridor is non-attainment area for air quality for federal standards. Added to that is the constant burning of jet fuel. The EPA has set standards of only seven toxic air pollutants while hundreds of chemicals that are harmful to our health and environment remain unregulated! In the laboratory these toxins are measured one at a time, but in the real world, we experience them together, where they bioaccumulate, and to what extent? We need also to look at electromagnetic fields' effect.

Until we can immediately put this study forth, grassroot advocates, such as the Huntington Breast Cancer Action Coalition have taken it upon themselves to fill a gap. With donations of space, materials, computer equipment and the support of Huntington Hospital, grassroots advocacy groups are trying to connect with individuals and raise awareness on Breast Health in towns across Long Island.

Approximately one year ago at this site, Huntington Town Hall, a community got together to launch a campaign that may save lives while the studies to the environmental connection to cancer of the breast are taking place. The Huntington Breast Cancer Action Coalition has sent out to all women in Huntington Township who are twenty-five years or older, a Breast Health Survey, a copy of which is enclosed with our testimony. All women are asked to respond. This survey was prepared by a biostatistician, epidemiologist from Stonybrook University. Dr. Roger Grimson , and sent to seventy-thousand households in Huntington Township. A similar ground-breaking survey was originally conducted in West Islip and NOW other communities.....Brentwood, Bayshore, Babylon, Long Beach, Brookhaven and Great Neck, to name a few, are starting up with volunteers, all who are passionately concerned citizens.

This survey on Breast Health, our tool, has a twofold purpose.

1) To increase awareness of Breast Health in our communities and to encourage women to be comfortable and accountable for their own BREAST HEALTH. This survey has proven to help *increase* the number of women taking advantage of ALL we have for now.....early diagnosis, self breast examination, and mammography.

2) To encourage our government to provide the funding necessary to do these studies and to encourage more scientific forums. We are increasingly showing our Government the numbers of people who are seeking TOTAL, FOCUSED, IMMEDIATE and UNIFIED commitments which are necessary to find and eliminate the factors that threaten our breast health.

We will be creating a demographic map to show if there are clusters of Breast Cancer in certain areas, and we will offer the findings for study.

Organizations, such as the Huntington Breast Cancer Action Coalition have proven that "home-based" arenas and a "familiar face in town" encourage more women to be a partner with their chosen health practitioner.

Mr. Chairman, we believe this investigation should determine what chemicals were used on Long Island and where, so that research can target those chemicals and the chemicals that result from their breakdown. Particular focus should be on organochloride and other estrogen-acting chemicals, because of the connection to breast cancer, as was found by Mary Wolf. The tragedy of cancer is that it occurs many years after exposure, so the damage is not noted at the onset.

There is a sensitive window of vulnerability in the case of hormonal balance. If it is upset, parents might not show it, but damage could show up in their children.

Breast cancer survivors live with uncertainty every day of their lives. Ours is a disease that can recur at anytime; when it does, we rarely survive.

Despite the loss of hundreds of thousands of women over the last decade, there is still no cure, and the causes are not yet known. Dr. Larry Norton, of Sloan Kettering, recently spoke to us and exhorted us to "keep the issue alive....keep energy flowing". The more money for research the more scientists are attracted to the study of this disease, and in attracting the best and the brightest, we will be increasing the possibilities that the important discovery will be made.

Cancer is a disease of civilization. Epidemiological studies tell us that we MUST know more.

We are your mothers, sisters, daughters.......help us to live.

I would like to acknowledge my Congressman, Gary Ackerman, who has been very supportive of our efforts to address the breast cancer issue....my Senator D'Amato who also has been instrumental in bringing the Long Island concerns to the front burner.....State Majority Leader Marino and his staff who have been personally involved on the issue and have obtained a $25,000 grant in our name...Assemblymen Flanagan and Conte for their advice and support....Suffolk County Legislator Binder, the Suffolk County Breast Health Partnership and Huntington Town Supervisor Ferraro for being generous with support and enthusiasm at the community level.

Contributors to the above text: Karen Miller, Elsa Ford, Jerry Poje, Musa Mayer, Mimi Galgano

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Chairman Towns, Congressman Ackerman, distinguished panelists of the Government Operations Subcommittee on Human Resources:

The National Cancer Institute should be made aware that the

Huntington Breast Cancer Action Coalition is conducting the largest demographic mapping of women's breast health/ disease in the country, as we speak, consisting of 72,000 households, in the town of Huntington, Long Island, New York. All equipment and services, at the present time, are donated. However, if an estimate were to be made of its cost, $500,000 would be the approximate figure. This is the figure for one neighborhood demographic mapping study connecting the environment and breast cancer.

How in the world can a project be created to effectively seek the environmental connection to breast cancer on Long Island with $350,000? The figure of $350,000 only speaks true if all the demographic mapping for Long Island has already been completed, which it hasn't. It has only begun and there are more than 5 towns on Long Island. That would wipe out the projected $350,000 a year for 5 year budget allotted for this project. It seems unrealistic to think $350,000 will cover an environmental study that will include air, water and soil pollution, and electromagnetic fields. The figure only seems realistic if the basic field work has been done and the cancer registry is in top condition. It has not and is not. The registry is not even computerized. There is currently a 4 year lag time for statistics in the state of New York and it should be down to 2 or 3. After the breast cancer registry is completed and mapped out, there must then be the overlays for roads (indicating air pollution), power and transmission lines (for the effect of electromagnetic fields), service areas for water wells (for organic waste) and farmland (indicating pesticide use).

I understand that after 5 years if the study is inconclusive, there is the possibility more money can be allocated. However, 5 years is an unacceptable time period for a useless study for a cancer survivor. Every 3 minutes a woman is diagnosed with breast cancer and every 12 minutes a woman dies of breast cancer.

The $1.6 million dollars should stay on Long Island. Do not channel money away from Long Island but toward it, and in increasing numbers when possible. Cold Spring Harbor Laboratories, with its staff of Nobel prize recipients, should be involved. There must be extensive field work and $1.6 million dollars for breast cancer seems a paltry sum when $625 million dollars is being spent by the National Institutes of Health to find out if 1)estrogen can decrease the risk of heart disease (even though it may increase the risk of breast cancer which we are desperately trying to eradicate), 2)if calcium and vitamin D supplements reduce the risk of hip fractures and 3)if a low-fat diet will reduce the risk of breast and colorectal cancer. If you do channel it elsewhere, it would be a gross misappropriation of funds. Especially at this time when the right questions are being asked. Long Island is an ideal area for the study of the connections between breast cancer and the environment. Unfortunately, we on Long Island do seem to be a veritable petri dish for breast cancer, as borne out by the statistics that Nassau and Suffolk Counties breast cancer rates are 13% higher than the national average.

Not being a politician, it seems to me that at a congressional hearing it would be more effective if all who are giving testimony would stay to listen and not testify and run...especially when it comes to breast cancer. The breast cancer survivors are the last ones to speak, and perhaps have the most wisdom to impart, the most to gain and the most to lose when it comes to legislation affecting this issue. The willingness to stay and listen, in my mind, indicates a desire to work together. If we all believe only what we have to say is singularly important, how will change occur? Grassroot activists have seen how effective we can be when we work in unity. All of Long Island is looking to see that monies originally allocated to focus on Long Island to find the multiple causes of this disease are kept on Long Island. We do have the dubious distinction of having the highest breast cancer rate in the country. We have the most to lose if the money goes elsewhere and the study is diluted, and the most to gain if it stays.

Contributors to the above text: Karen Miller, Suzanne J. Zoubeck

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Newsday October 31, 1993

Ms. KRITCHEK. May I just say one more thing?

That if we don't speak in a unified voice, we will fragment this situation. We must all get together, speak in a unified voice, and together we will make a difference.

Mr. TOWNS. We will come back to you.

Ms. KRITCHEK. OK, I just thought you were leaving. I saw you wiggling.

Mr. TOWNS. I understand.

Ms. KRITCHEK. It's been a long day.

Mr. TOWNS. No, I understand, but now it's, we have to go back to the hearing format.

Ms. KRITCHEK. Sorry.

Mr. TOWNS. I understand, no question about it.

Let me begin by saying to both of you, how we appreciate the work that you're doing. I happened to read the New York Times Magazine of August 15, and admire how you're making other people aware of the problem. I think it means a great deal.

And to those of you that might not have seen the article, in terms of the members, I suggest that you take a look at it and read that article, because it also highlights both of our witnesses on this panel, in terms of what they're doing.

So, thank you very much for that.

Also, let me assure, you, too, that NCI will be made aware of your testimony. You can be assured of that. They will get every word of it. I also want to add that you should be very proud of your elected representatives in the Congress. [Applause].

They are here. They have stayed throughout the hearing. They have listened and, of course, there's no question in my mind that the kind of commitment and dedication that they have, that as a result of it, eventually, something is going to happen, in a positive way.

Now, I know that Ms. Kritchek has something to say, so what I'd like to do is let's switch seats—you come up, come up here where I am, right now, and you tell me what can we be doing?

Ms. KRITCHEK. It's just a slogan that we use, but it's so terribly important.

If we speak in a unified voice, together, we will make a difference. The grassroots activists, the legislators, hand-in-hand we will march forward, and we will beat this issue, but we have to do it together.

Mr. TOWNS. Thank you, thank you.

At this time, I'd like to yield to Congressman Ackerman.

Mr. ACKERMAN. Mr. Chairman, thank you very much. And, again, I can't overemphasize now how much we appreciate the fact that you have seen fit to call this hearing on Long Island, rather than in Washington, DC or elsewhere. [Applause].

And, I think it is important for our constituents and the media, if any of them are left—and I think some of them might have left a little too early and some of them got the wrong story—so that people know what the process is all about.

This is a process that we learn from and we want it to take place in full public view.

Karen, you said, you know, you wanted us to help you, being all of those people that each of our women here represent. And it's not just that you're our mothers and our wives and our sisters and ou. daughters—you're our teachers, too. And had it not been for that role, which so many of you play, we would not have at all understood what this problem is all about.

We're educable, despite the fact that we're politicians, and we are concerned, in a very nonpartisan fashion, and are determined to come to grips with this situation.

I think the thing that we have seen here today—and I don't know how each of you who have been victimized by this terrible disease can sit there so calmly and dispassionately, while being once again mugged by this system, in full public view of your elected public officials, while I am on the verge of hysteria just participating in the process, is beyond me. Maybe you have an explanation for it, but certainly, I guess it's because you've experienced it time and time again, in trying to call your frustrations to our attention, as to how lightly those in policymaking and policy carrying-out positions can take the plight of women with breast cancer.

Coming into this process, each of us up here, both Members of the House, Members of the Senate, and very important staff people, were under the very strong impression that we had the full-blown study that the House had voted for. And, indeed, we took the liberty of passing this out, over here.

We had a question—this was just a sheet of the six grants and making the announcement—and the question, basically here, just checking off Lee Kaplan's grant, over at Stony Brook, said this study will complement the NCI study.

Well, just in adding up the numbers, you saw what happened. This is the NCI study. This isn't the NCI study that we thought we were going to get, that the Senator thought we were going to get, that the entire House of Representatives believed we were in the process of conducting.

This is just, as Congressman Lazio so ably pointed out, this was just another study that was in the pipeline. You know, they just don't grant studies and—well, just granted this month, had nothing to do—you know, you don't grant a study in a month. There's a whole process to putting together a study and submitting it.

And they think, they thought that they could just toss us some kind of placebo to satisfy us, claiming that this is the North Shore study, and that would be the end of it. First of all, this $1.5 million, Mr. Chairman, to which they allude, is the whole Northeast region study on environmental factors that might affect breast cancer. It has nothing to do with the environmental factors that have become the statistics of Long Island that so many people are dying from.

We appreciate your leadership, Mr. Chairman, and the suggestion that, indeed, we should meet with Dr. Broder, to bring this matter to a head. I happen to have a copy of the legislation, from the conference report, that asks for all of the things in the study that we thought that we were going to get. You know, it enumerates them, all of the different factors, from drinking water to indoor and ambient and air pollution from cars and aircraft and pesticides and toxic chemicals and hazardous and municipal waste and other factors that the Director determines, as well as electromagnetic fields—you can't do any one of those.

I mean, there was a movie, I guess it's still out, "The Distinguished Gentleman," starring Eddie Murphy, in which the premise was that electromagnetic fields were causing brain cancer in people, and there was some, I guess it was a corrupt Senator who was connected with the electromagnetic lobbyists, his main contributors, and therefore wasn't going to let the legislation move. I venture to guess that the consultant for electromagnetic fields on that movie got more than $1,000 a day.

And I'll bet you I'm not wrong.

What we have seen here has, I believe, been an insult to our constituents and an insult to the process, Mr. Chairman, and I think that we have to redouble our efforts to take up the cause to which we have been called by the very courageous, mostly women here, who have fought this battle for so long, and yet remain so calm about it.

I think their calmness and determination have stirred the passions of each and every one of us privileged to sit with you today, Mr. Chairman, and your subcommittee, to make sure that we go back and hold not only NCI's feet to the fire but anything else that we think we want to warm up.

I want to thank these women who testified here, today, probably the most important part of this panel, and we don't, you know, do it in order of descending importance. It's always done with the public officials and public witnesses before the private witnesses. It's just the way the Congress has historically worked.

But, as the crowd thins out, sometimes we get the most important testimony last, and you are the reason that we are here today. And were it not for that, you would not see this kind of action. You should be so proud of yourselves for what you have done. [Applause].

We're glad you brought us to the point. We're so sorry that we were not as aware of it before as we are now, and you can count on our redoubled and tripled efforts on behalf of this cause and, Mr. Chairman, I have no questions for these courageous women.

Thank you.

Mr. TOWNS. Thank you and I yield to Congressman Lazio.

Mr. LAZIO. Thank you, Mr. Chairman.

I don't have any questions, either. But again—and I can't express it any more eloquently than my colleague, Gary Ackerman, just did—how much we respect the work that you're doing and saving lives along the way.

I want to thank the chairman, Ed Towns, and his very capable staff for coming out to Long Island, for conducting the hearing in a way that is thoughtful and fair. And that's his reputation in the House, on both sides of the aisle, I have the great, greatest respect for him.

I want to thank Gary Ackerman for making this room possible, for bringing it to our attention, for inviting me, for all that he does to fight for greater awareness in breast cancer; and, of course my other colleague, George Hochbrueckner, at the end; and, Floyd Flake, who had to leave, but I think went through extraordinary efforts to show his solidarity in being here and making sure that this committee was able to convene.

So, I thank you, Mr. Chairman.

Mr. TOWNS. Thank you. [Applause].

Mr. TOWNS. Congressman Hochbrueckner.

Mr. HOCHBRUECKNER. Thank you, Mr.Chairman.

I have a couple of questions about the mapping program.

Where is it going on right now?

Ms. PACE. OK, I'll get the map right now. We're always ready, always have the map. I'm so glad you asked me.

Mr. HOCHBRUECKNER. Is this the redistricting map?

I sort of figured that the reason it was laying on the floor back there had a purpose.

Ms. PACE. Now, this is a map of the 8,750 homes—there are 50 more malignant cases to be charted yet, that we did not chart——

Mr. TOWNS. Could I—could I just interrupt you just 1 second?

Being this is an official hearing, could you give us your name, because we'd like to get you on the record.

STATEMENT OF LORRAINE PACE, FOUNDER AND PRESIDENT, WEST ISLIP BREAST CANCER COALITION FOR LONG ISLAND, INC.

Ms. PACE. My name is Lorraine Pace, founder and president of the West Islip Breast Cancer Coalition for Long Island, Inc.

Mr. TOWNS. Thank you.

Ms. PACE. We are doing this study with Dr. Roger Grimson, who has started with us, and Dr. Feinstein, Dr. Michael J. Feinstein, who's an oncologist in Plainview.

What this map represents are homes that have answered our survey. When you do a survey, you're lucky if you get between 1 and 10 percent. We have gotten over 60 percent of the population, and that is unheard of. Nobody responds like that to a survey.

Let me explain this map. The blue are the people that have answered, that do not have breast cancer. Mind you, that doesn't mean they don't have cancer. If we were to fill in all the cancer cases, I can guarantee you that you would see very little blue. There is so much cancer out there, it is unbelievable, and we do not have the proper statistics.

Our registry is so far behind, our New York State Registry, and the way it's handled is a total disaster. Yet, our Lottery is networked and computerized, but the hospitals are still sending postcards, called CC1 cards, to Albany. That is an outrage.

How are we ever going to find out where this cancer is coming from unless we have an up-to-date registry?

And, another thing we found out is that not every hospital has to have a registry. There is no law stating that every hospital has to have a registry—some do and some don't. So, if you go to a hospital with a registry, you can ask, how many prostate cancer cases did you have last year, and they can call it up on a terminal and they can tell you in a minute—or how many breast cancer cases? They can call it up and they can tell you in a minute.

Yet, you can go 2 miles down the road and ask another hospital, and they'll say no clue. It's all in medical records.

On the map yellow is malignant. Pink is benign breast disease. And if you will look, there are clusters. Why are nine homes in a row, all with breast cancer, either benign or malignant? Did they get sprayed with DDT or chlordane or something? This should be checked into and investigated, and that's why there are maps going all over Long Island, from Great Neck to Port Jefferson to the Hamptons.

Mr. HOCHBRUECKNER. And who is coordinating the mapping effort?

Ms. PACE. Dr. Roger Grimson and Dr. Michael Feinstein, at Stony Brook.

Mr. HOCHBRUECKNER. OK, now, what particular area is this?

Ms. PACE. This is a map of a low incidence area of breast cancer——

Mr. HOCHBRUECKNER. Where?

Ms. PACE [continuing]. In West Islip—low incidence, low to moderate, according to the State, but yet there——

Mr. HOCHBRUECKNER. OK, now, has any government agency expressed any interest in your information, at this point?

Ms. PACE. Absolutely. We are giving this to Stony Brook, to Dr. Grimson, and I think he applied for a grant. Guess how much he got? To do all of Long Island, $20,000, to do a study. Is that ridiculous? And, I am so proud of Mr. Ackerman for picking that up, right up on that. Everybody thought we were getting one, point, whatever million dollars. He picked up on that immediately, and I'm very proud of you to, to find that out.

Mr. ACKERMAN. That's why we get the big bucks. [Laughter.]

Ms. PACE. So, this is what all the women have been doing in the past 18 months. We could find out where breast cancer is coming from, right here on Long Island. We've got the best minds. Just stop and think what we have.

We have Stony Brook University, with minds from all over Long Island, from the world, rather; and then we have Cold Spring Harbor and we have the best technology. We have data technology, the MRI. We can find what's causing it right here on Long Island, and we will help the rest of the world.

One thing I want to make sure of is that the study includes heavy metals, especially cadmium.

Any questions on the map?

Mr. HOCHBRUECKNER. I think you've done extremely well.

Ms. PACE. Thank you. [Applause].

[The prepared statement of Ms. Pace follows:]

TESTIMONY OF LORRAINE PACE

SUBCOMMITTEE ON HUMAN RESOURCES AND INTERGOVERNMENTAL RELATIONS
HEARING ON CANCER AND ENVIRONMENTAL CONTAMINANTS

OCTOBER 30, 1993

My name is Lorraine Pace and I was diagnosed with breast cancer in March, 1992. I am here because of a question I asked one year ago. The question was, "Why have I and so many of my friends and neighbors in West Islip come down with breast cancer"? No one had an answer for me. My Oncologist didn't. The Water Authority didn't. There simply was no way anyone could explain it. That's when the West Islip Breast Cancer Coalition came into being. We began as a small group of women determined to do something about the problem of breast cancer on Long Island. As many of you know, what we did was send out surveys to all West Islip residents. The survey asked questions about their medical history and, in particular, the incidence of breast cancer. When the surveys came back, we recorded the results on a huge map of West Islip, using a color coding system. The pattern that emerged from our mapping frightened us. There was never an isolated case. If you saw one case, you were sure to see another next door, or across the street. Many who saw our map-newscasters, cameraman, Suffolk County civic and fraternal groups asked the same question we asked - WHY? What was the common factor on Long Island that caused this pattern of breast cancer cases? That question has not been answered yet, but our map, our survey have raised it often enough to get it the attention it needs. It's getting the attention of the medical and scientific communities. It's getting the attention of the politicans. It's getting the attention of those who have the resources, who have the power and the authority to do something about breast cancer on Long Island. The attention it's getting is long overdue. Our work, our map have accomplished much. In its travels around Long Island, the map has motivated other groups to plan similar projects. Our work has led to our involvement with the medical community. Good

Samaritan Medical Center of West Islip has announced plans for a Breast Cancer Health Center which will provide comprehensive, on site care for breast cancer patients and their families. We don't know how many women were motivated to get mammographies as a result of our survey. We do know that 18 women whose first reply was negative for breast cancer called us back after their mammographies. Yes, they had breast cancer. Yes, they were frightened. They were glad they had not waited any longer. Our work has raised other question as well. Why is the breast cancer registry so out of date? Why doesn't every hospital have a tumor registry? Why are the deaths of breast cancer patients so often attributed to other causes on death certificates? Why do many insurance companies not pay for mammographies? Our map and others like it, will be turned over to researchers who can than start working on finding answers to our questions of Why such high numbers of breast cancer on Long Island? There is a great need for a broad-based environmental study on Long Island. Do we truly know or understand the role of pesticides water contaminates and electromagnetic fields in the epidemiology of breast cancer? No! We need to find out how to eradicate this most devastating disease once and for all.

THANK YOU

Mr. HOCHBRUECKNER. Mr. Chairman, let me just close by saying that the hearing today was obviously a very important hearing, because what it has done is bring us to the reality that what we thought we were getting from the comprehensive study is not what we're getting at this moment. Clearly, your suggestion for a meeting with Dr. Broder, with the Long Island delegation, is absolutely the right thing to do, so that we can take up this matter and, in fact, get the study we were promised.

So, thank you very much. We greatly appreciate your indulgence, your time, your support in this matter. Thank you, Mr. Chairman.

Mr. TOWNS. Thank you, thank you. [Applause].

Let me again thank our witnesses for their outstanding testimony. I just wish the press had been here to hear you, because I think that your information is just so important to this whole process, and what you've done is so important.

I also want to assure you that we will stay on top of this, to make certain that, first of all, that the situation that exists here is recognized by all. And, of course, just to let you know that we're not total outsiders, my counsel comes from the Town of Huntington, and, I'm a graduate of Adelphi University, so we're not outsiders.

We have a real concern in terms of what happens here. So, you can be assured of our oversight. You can be assured of the fact that we will work with the elected officials and Members of Congress in this area to try and see if we can't get some information because I agree with you, we need to have some answers.

Thank you, very, very much.

I want to thank all the witnesses, again. for their testimony today, and the record will remain open for 1 days for additional information, just in case you feel there is something else that we need to know. We will leave the record open for 10 days in order to get that information.

This hearing is concluded.

[Whereupon, at 5:45 p.m., the subcommittee adjourned, to reconvene subject to the call of the Chair.]

APPENDIX

STATEMENTS FOR THE RECORD

STATEMENT BY REP. PETER T. KING
BEFORE THE
COMMITTEE ON GOVERNMENT OPERATIONS
SUBCOMMITTEE ON HUMAN RESOURCES AND INTERGOVERNMENTAL RELATIONS
FIELD HEARING ON ENVIRONMENTAL CAUSES OF CANCER
OCTOBER 30, 1993

Mr. Chairman, I would like to commend you for holding this important hearing on the link between environmental contaminants and cancer here on Long Island. I cannot think of a better or more relevant place to hold a hearing of this nature.

In recent months there has been much attention paid to the possible environmental link to cancer, especially breast cancer. This, coupled with the high incidence of breast cancer, has many women and their families alarmed...and with good reason. Within New York State, Long Island has the highest mortality rate for breast cancer. From 1984-1988, the breast cancer mortality rate for one particular group in Nassau County was 16% higher than that of New York State and 36% higher than that of the nation.

Perhaps the most frightening aspect of breast cancer is that we don't know what causes it or how to cure it. Breast cancer is a disease with a legacy - a woman who is diagnosed with breast cancer knows that it is likely that her daughters and granddaughters will hear the same diagnoses some day. Yet the majority of women who have breast cancer have no family history of the disease. 80% of women who are diagnosed with the disease fall into no known high risk category.

So what is going on? Why don't we have more clues to the cause of this dreaded disease?

I believe that we need a comprehensive study to focus specifically on the possible environmental link to breast cancer. That is why I have worked closely with my colleagues in the Long Island delegation to support such a study to be conducted by the National Cancer Institute in conjunction with the National Institute on Environmental Health. As many of you may know, this study has won the approval of the Congress and will get underway in the near future.

This study is an important victory for the people of Long Island. I am pleased that our area has been singled out for a comprehensive investigation of this nature. While we await the results of this study, however, must continue to raise awareness about breast cancer. Early detection is essential for breast cancer survival. I look forward to working with my colleagues in this important endeavor.

Supervisor
BENJAMIN L. ZWIRN

Town Board
MAY NEWBURGER
ANTHONY D'URSO
BARBARA JOHNSON
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BARBARA JOHNSON
Councilwoman

November 3, 1993

To: Congressman Gary Ackerman
From: Barbara Johnson, Councilwoman

When a young woman and mother confronts her own premature mortality, she asks herself three questions. Immediately, she worries for her children and loved ones - how will this affect their futures? The second question is "how did I contract this disease?". After all, breast cancer used to be an illness older women used to get. Her last question, and most frightening, is whether she will survive. Is there a cure? Can I endure the treatment? Can my family endure the treatment? What will happen to my children should treatment fail?

Throughout America, tens of thousand of young women ask these three questions every year. This is terrifying, and it's on the increase.

If and when these young women overcome this disease - through grueling treatment and mental and spiritual fortitude, they are transformed! They are no longer career women. They are no longer just Mothers and Wives. They are survivors. They then ask a fourth question: "Why me?" and "Why did I get this?". "Why are my childhood friends - women I went to school with, why are they getting this too?" Young teachers, lawyers, accountants, 9 to 5ers and mothers not yet age 40, not yet 30 - are getting sick.

Over the past decade, we have sought to join together to answer this last question. Why has it become commonplace for so many young women to get this disease? It is 1993 and we still do not know. Let me make it clear that it is imperative that we seek out the cause. But even should a "cause" be found - the fear and uncertainty will not be gone. As we prod science to find the cause, we must also find a cure. Because even if we find the cause tomorrow and eliminate it the following day, women who were exposed would continue to be at risk. Indeed, it is quite conceivable that both they and their daughters could be at risk for well into the 21st Century.

As we speak, there are hospitals and research centers making great strides in the fight against breast cancer. They have developed more effective treatments - and they are looking for a cure itself. Nevertheless, these institutions are not getting the full support and financial assistance they need. Moreover, their progress, their new and more effective treatments are not reaching out beyond the principal metropolitan areas as fast as they should.

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Women and their physicians need access to the most advanced treatments to be accorded the best chance at survival. Progress in treatment cannot help those it cannot reach. Therefore, it is essential that the latest treatments be made accessible to all. Furthermore, the quest for a real cure must be given a top priority.

As a Member of the Council of the Town of North Hempstead and a breast cancer survivor, I know only too well that we cannot continue to live in fear. Families cannot continue to endure this uncertainty. Women throughout America cannot continue to stand by and say "who's next?".

Thank you,

Barbara Johnson

BARBARA JOHNSON

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Statement by Roger C. Grimson, Ph.D., 3 Birdseye Circle, Stony Brook, NY 11790. (Tel 516/751-8986)

Before the Subcommittee on Human Resources and Intergovernmental Relations of the Committee on Government Operations, United States House of Representatives, October 30, 1993.

The purpose of this statement is to supplement the testimony given in Congressman Towns' subcommittee hearings by Ms. Lorraine Pace, President of the West Islip Breast Cancer Coalition for Long Island, Inc.

Beginning in 1932 a local company manufactured products that involved electroplating and metal cleaning. Between 1932 and 1985 waste material from these processes affected soil and ground water in certain known areas of West Islip (Fact Sheet on Dzus Fastener Company, NY State Department of Health, Department of Environmental Conservation, February, 1993). The State has been sampling soil, and, ground and surface water for types and amounts of contaminates, and they have been monitoring the movement of these materials in this environment.

The chemicals of concern are cadmium, chromium and cyanide. Cadmium levels are particularly high as determined from samples collected from the monitoring wells.

Several studies have found associations between cadmium and the induction of cancerous tumors at various organ sites in animals. Also, cadmium is known to cause several diseases, including cancer in humans.

The detailed breast cancer map being completed by the West Islip Breast Cancer Coalition for Long Island will be used to identify residential histories of groups of women who have been diagnosed with breast cancer. This will be done to test the hypothesis that the prevalence of breast cancer is elevated in areas affected by cadmium contamination, as compared with other areas.

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November 3, 1993

Cong. Gary Ackerman
229 Main Street
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New York 11743

Dear Cong. Ackerman:

May I first congratulate you for your critical involvement in last Saturday's hearings.

Following my testimony, in which I referred to the proposal by the February 4, 1992 coalition that primary cancer prevention should receive half NCI's budget (p. 7, para.2), you inquired as to whether this would entail reducing NCI's budget for cancer treatment or whether increased appropriations for NCI would be necessary. Constraints of time did not allow me to respond adequately. For these reasons, I would like to take this opportunity of responding more fully in writing below and request that this reply be entered into the Congressional record of the hearings:

> "The recommendations of the February 4, 1992 Coalition of cancer prevention and public health experts that NCI that cancer cause and prevention programs on research, public infolrmation and interventions should receive at least equal budgetary emphasis as all other NCI programs on treatment, diagnosis and basic research combined, are based on the following considerations:
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> 1. "NCI's claims to have allocated $645 million to cancer prevention and $335 million to primary cancer prevention in its 1992 budget are grossly exaggerated and misleading (Appendix 4, p. 117-118). In fact, analysis of NCI's budget reveals that less than $50 million (2.5% of its budget) is allocated to research on avoidable exposures to industrial carcinogens in air, water, food, and the workplace, that no resources have been allocated to public information and intervention programs in these areas, and that NCI has failed to provide scientific

testimony on grave cancer hazards from such exposures to both Congress and regulatory agencies.

2. "Currently, basic research receives approximately half of NCI's $2 billion budget. However, there is little evidence that such research is in any way relevant to cancer in general, let alone to cancer prevention. This is frankly admitted by leading national molecular biologists receiving very substantial NCI funding (Appendix 4, p. 115-116). Such skepticism on NCI's high priority for basic research has also been emphasized by Cong. D. Obey. Clearly, the National Institute of General Medical Sciences would be more appropriate for funding most of such basic research. Illustratively, there would seem little justification for NCI's intramural program on basic research on a gene possibly involved in homosexuality.

3. "Cancer prevention is clearly more cost effective, pain and suffering apart, than treatment. This is especially the case as some cancers are incurable, and even more so as there is little evidence of substantial advances in the treatment and cure of most cancer over the last few decades, even in spite of over $20 billion NCI funding since passage of the 1971 National Cancer Act.

4. "For the above reasons, allocating $1 billion of NCI's budget to primary cancer prevention would not entail reduction in NCI's cancer treatment budget, nor would it entail the need for any increase in NCI's already very substantial budget."

Sincerely yours,

Samuel S. Epstein, M. D.
Professor of Occupational
and Environmental Medicine
and
Chairman, Cancer Prevention Coalition

cc: Cong E. Towns
(Attention Ms. Allegra Pacheco)

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